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CONTRIBUTIONS

TO

THE BIOLOGY OF THE PLAICE

WITH SPECIAL REGARD TO THE DANISH PLAICE-FISHERY

VII

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WITH SUPPLEMENTARY OBSERVATIONS ON THE PREVIOUS DANISH EXPERIMENTS

BY

A. C. JOHANSEN

(WITH 27 FIGURES IN THE TEXT)

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I. Introduction

A. General remarks

From the year 1903 the Danish Commission for the Study of the Sea has every spring undertaken some marking experiments with plaice in the North Sea near Horns Reef in order to procure information and trace variations regarding:

1. migrations,
2. intensity of fishing,
3. rate of growth.

In addition to this, we have now and then undertaken marking experiments in summer and autumn, mostly in order to investigate the intensity of fishing and migrations of fish liberated at that time of the year.

All the plaice marked were caught by »Snurrevaad« in hauls of ca. $^1/_2$—1 hours duration.

B. The Method of marking

In the course of years the label employed has been subjected to several changes. During the nineties of the past century the Danish Biological Station employed the label constructed by Dr. Petersen, consisting of 2 bone buttons connected by a silver wire, and with the number burned into one of the buttons. This mark appeared to be fairly satisfactory; it was however an essential deficiency that the number frequently became illegible when exposed to the corroding influence of sea water for any length of time. To avoid this in our experiments in 1903 a brass disc with stamped number was placed on one of the bone buttons, and it now appeared that the brass disc was by far more durable than the bone buttons. In 1907 therefore, we placed a brass disc without number also on the other bone button the brass discs being set in hollows cut in the bone. These labels have on the whole been very good, but as labels consisting of 4 plates: 2 bone buttons and 2 brass discs are somewhat complicated, we have in 1907—08 and later years replaced the upper button and brass disc with one oval brass disc turning the convex side down toward the fish, after an English model. As previously mentioned [1]) it has sometimes been noticed, on recapture of the marked fish, especially in smaller specimens, that the silver wire which fixes the label has produced a longitudinal wound between the interspinous bones, so that the label has moved out towards the edge of the body. Several specimens evidently lose the label in this way.

[1]) A. C. Johansen: Contributions to the Biology of the Plaice II, p. 4.

C. The shrinkage of the fish after death before remeasurement.

According to the experience gained we reckon with a certain shrinkage in length of certain of the marked fish in consequence of a greater or lesser drying up of the fish in the time elapsing between recapture and measurement [1]). The amount of shrinkage with which we reckon is as follows:

If stated: »head dry«, »tail dry«, »head and tail dry«, »tail curled« ..... 0.5 cm
— »fish rotten«, »fish salted«, »fish dry« or »fish somewhat dry« .. 1.0 -

If stated »fish fresh«, »fish good« etc. or if nothing is stated as to condition, we have not taken the shrinkage into consideration.

D. Particulars regarding the Tables and Figures.

On the charts illustrating the marking experiments the head of the arrow indicates the position of the place of recapture. The letters beside the arrow heads represent the nationality of the vessels by which the plaice were recaptured: Da. meaning Denmark, E = England, H = Holland, G = Germany, S = Sweden. In cases where there are no letters at the arrow head, »Da.« has been omitted. The Arabic numerals at the arrow heads indicate the number of months between liberation and recapture, 0 meaning: recaptured in the same month as liberated, 1 meaning: recaptured 1 month after liberation and so on. If the plaice are liberated *e. g.* in March, all those recaptured in March are marked 0, all those recaptured in April are marked 1 etc.

On the charts illustrating the experiments from 1910 to 1912 a difference has been made as regards sex. The arrow heads indicate here only the males, while females are denoted by a spot.

Practically all plaice recaptured by foreign fishermen are taken by Otter-trawl, while almost all plaice recaught by Danish fishermen are taken by Snurrevaad.

II. Supplementary records regarding the Danish marking experiments with plaice in the North Sea in 1903 to 1905.

The Danish marking experiments with plaice in the North Sea in 1903—1905 have been previously described by the present writer in »Contributions to the biology of the Plaice« Nos. I and II. The additional information as to recapture of plaice from these experiments later to hand will be found below in Table I.

It appears from this table that one of the marked fish has been more than 3 years in the sea before recapture (1115 days). It was taken near the place of liberation.

The growth of four specimens was as follows:

♀	20	cm.	Length after	14	months:	23.5	cm.	Recaptured in	A	3.
♀	21	-	—	- 20	—	26	-	—	-	—
♀	26.5	-	—	- 25	—	43	-	—	-	D 2.
♂	26.5	-	—	- 30	—	37	-	—	-	C 2.

None of these specimens were recaptured in the spawning season.

[1]) A. C. Johansen: Contributions to the Biology of the Plaice II, p. 5—6.

Table 1. Supplementary list of Recaptures from the Danish marking experiments with plaice in 1903—05.

Particulars of Liberation. Date. Locality. etc.	Date	No. on Label	Locality reported	Central Position (Approximate)	Fishing Vessel	No. of month between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximate	Remarks
				N E				cm	cm	cm	
1903, April 11 3 miles N of Tuxen Horns Reef 55°35′ N, 7°40′ E 12—13 m Mark. Experim. No. 5, 1903	1903 April 28 1906 — 30	871 950	4 miles W by N of Graadeep 13 m 6 — — —	55°26′ 8°08′ 55 26 8 05	Danish —	0 XXXVI	♀ ♀	28 27.5			
1905, April 15 8 miles SSW of Blaavand point 14 m Mark. Experim. No. 8, 1905	1907 Oct. 1	1761	55°17′ N, 4°30′ E 45 m	55°17′ 4°30′	English	XXX	♂	26.5	36.8	11	Dried and salted
1905, April 15 Northern part of Slugen North Sea 55°36′ N, 7°50 E′ 14 m Mark. Experim. No. 9, 1905	1907 May 4	1869	56°55′ N, 6°22′ E 66 m	56°55′ 6°22′	English	XXV	♀	26.5	43	16.5	Label wound slightly sore
1905, Sept. 29 Graadeep W of Esbjerg Harbour 55°28′ N, 8°25′ E 9 m Mark. Experim. No. 11, 1905	1906 Nov. 6 1907 May 24	2031 2038	Mejlsand in Graadeep 5 miles NW of Graadeep 13 m	55°29′ 8°24′ 55 28 8 07	Danish —	XIV XX	♀ ♀	20 21	23.5 26	3.5 5	sound —

III. The ordinary Danish marking experiments in the North Sea in 1906—1912.

A. Brief survey of the various marking experiments.

Spring experiments.

No. of Experiment	Date	Place of Liberation	Depth m	No. of specimens labelled
		N E		
1. 1906	April 7	55°25′ 8°00′	16	150
2. —	— 10	55 34 7 46	13	50
5. 1907	— 27	55 27 7 56	11—13	100
6. —	— 29	55 34 7 44	11—12	100
1. 1908	March 17	55 26 7 57	13	75
2. —	— 17	55 29 8 03	13	75
2. 1909	April 24	55 00 7 50	20	100
3. —	— 25	55 11 8 00	17	100
1. 1910	March 17	55 09 8 00	19	100
2. —	— 17	55 22 8 11	13	100
1. 1911	April 19	55 43.5 8 08	10	100
2. —	— 19	55 37 7 52	15	100
1. 1912	— 14	55 26 8 15	11	100
2. —	— 15	55 22 8 09	16	100

Summer and autumn experiments.

No. of Experiment	Date	Place of Liberation	Depth m	No. of specimens labelled
		N E		
3. 1911	June 17	55°15′ 7°58′	20	100
4. —	— 17	55 14 7 44	22	50
3. 1912	Sept. 11	55 26 7 45	25	75
4. —	— 11	55 19 7 48	21	75
5. —	Nov. 9	55 28 8 25	6—10	40
6. —	— 9	55 28 8 25	6—8	60

The spring experiments were all made in Area A_3 at depths between 10 and 20 metres, along a range from a point north-west of Blaavand to a point off Sylt.

The marking experiments in summer and autumn were made during the years 1911 and 1912, partly S of Horns Reef, partly in Graadeep.

B. The migrations of marked plaice.

1. Marking experiments in the spring months.

Marking experiment No. 1 1906 (Figs. 1 and 2) 150 plaice were liberated on the 17th of April 1906 south of Horns Reef at lat. 55° 25′ N, long. 8° 00′ E, at a depth of 16 metres.

During April and May, 29 and 38 individuals respectively were recaptured. On examination of Fig. 1, showing localities of capture for the individuals retaken in April and May, it will be seen that these localities lie mainly to the north of the place of liberation. In a sector of a circle of about 120°, 54 specimens were taken; within the remainder of the circle only 12. A sector of 15° north-east of the place of liberation includes no less than 15 specimens. Had the fish dispersed equally in all directions, this sector would have been found to contain only 6 or 7 specimens.

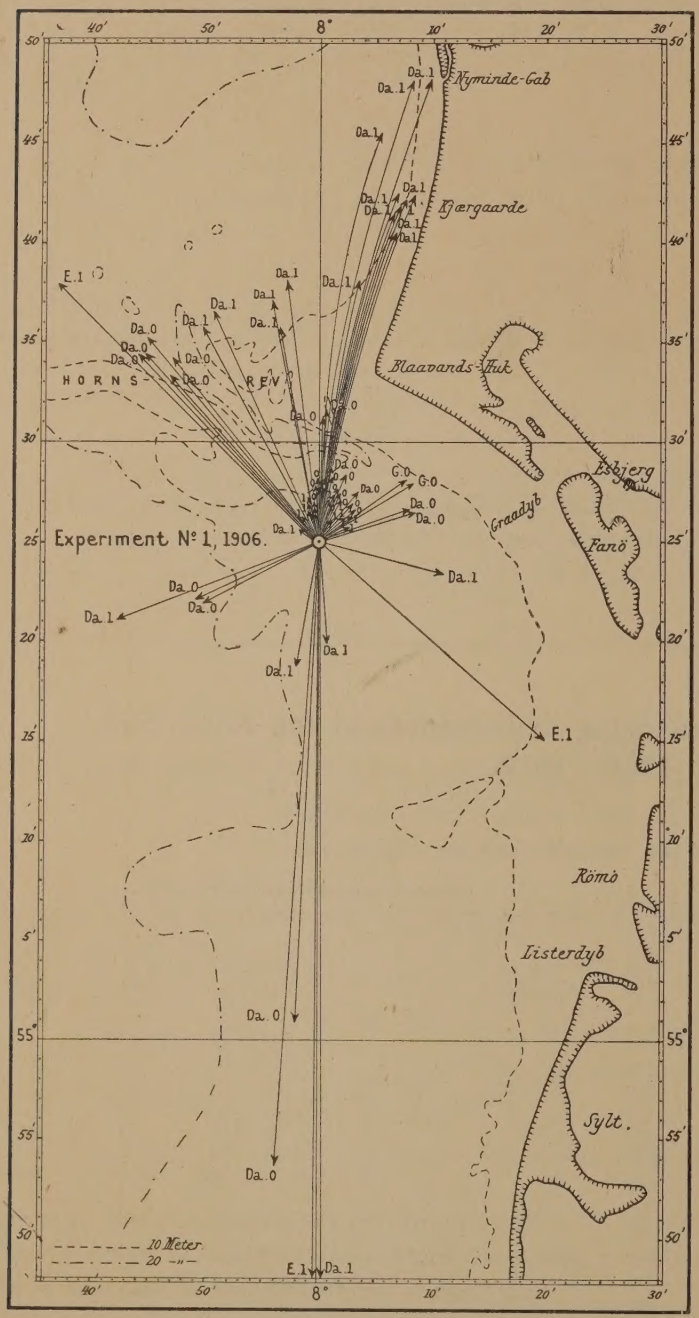


Fig. 1. Marking experiment No. 1 1906 April 7. Recaptures in April and May. (See p. 4. D.)

In June, July and August the captures amounted to 6, 2 and 3 respectively. Fig. 2 shows, that the localities of capture now lie to the west of the place of liberation, and at greater depths than this. Two of the September captures were made on the outer grounds of Horns Reef. During November and January, two females were taken at the north-eastern edge of the Dogger Bank. As to their condition with regard to maturity nothing is known. In April 1907, a male 35 cm long, probably mature, was taken on the Dogger Bank itself.

Marking experiment No. 2 1906 (Fig. 3) 50 plaice were liberated on the 10th of April 1906 a little to the north of Horns Reef, at lat. 55° 34′ N, long. 7° 46′ E, at 13 metres depth. The April recaptures were all made in the vicinity of the place of liberation, with the exception of 3, these being situate near the coast, off Nymindegab, and 2 some distance south of the reef. The great majority of the captures in May were made to the north-east of the place of liberation, closer in to land. As will be seen from the survey

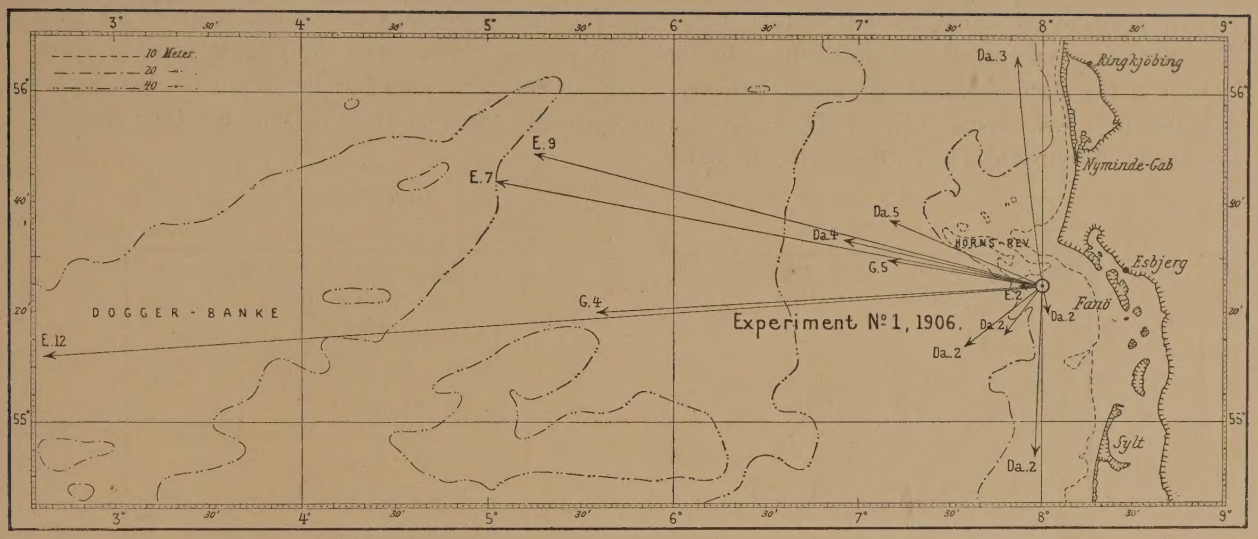


Fig. 2. Marking experiment No. 1 1906 April 7. Recaptures after the 1st of June 1906. (See p. 4. D.)

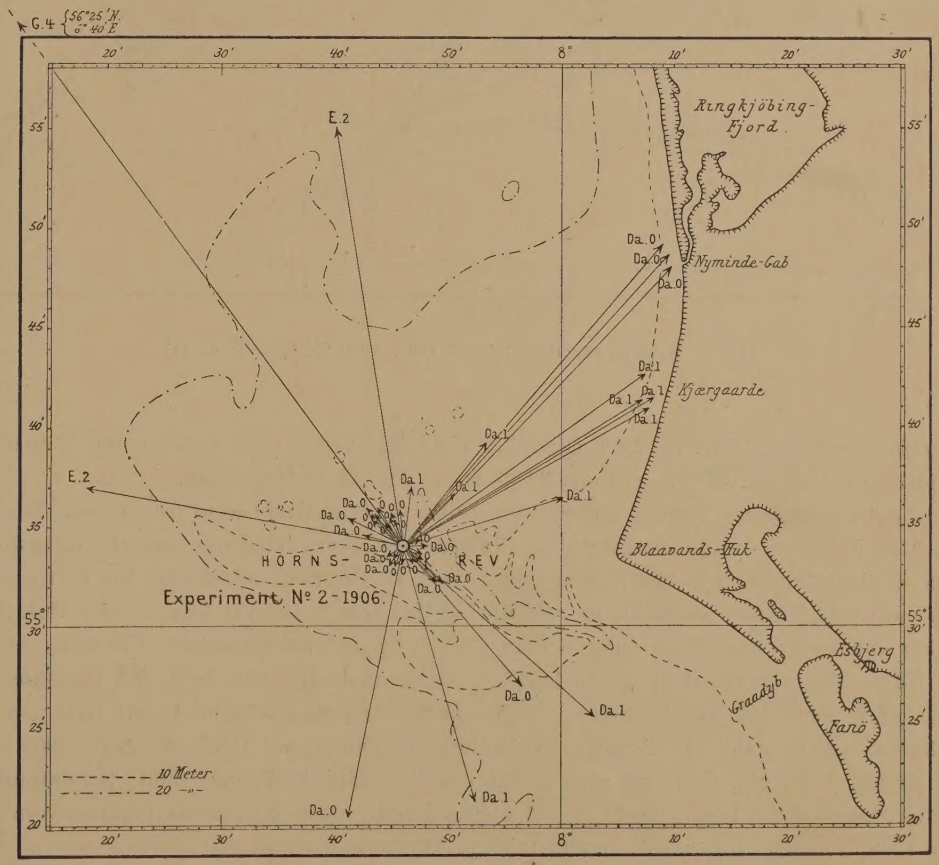


Fig. 3. Marking experiment No. 2 1906 April 10. (See p. 4. D.)

given on p. 37, there were at least as many Danish cutters fishing south of Horns Reef in May as there were north of the same; in spite of this, however, only three specimens were taken south of the place of liberation, as against 8 north of this. In June, two specimens were taken by English trawlers north-west of the place of liberation; none, however, south of the reef, although the whole of the Danish cutter fleet was fishing here in June. The main course of the migrations in June has thus probably been in an outward and north-westerly direction.

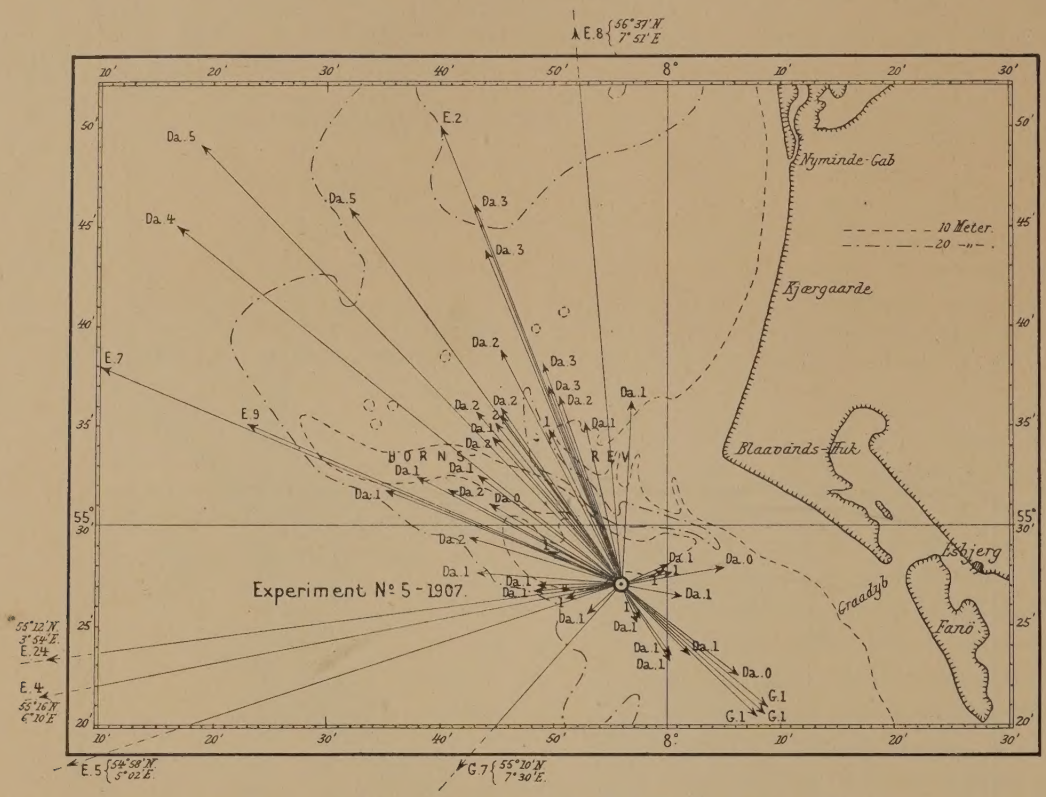


Fig. 4. Marking experiment No. 5 1907, April 27. (See p. 4. D.)

Marking experiment No. 5, 1907 (Fig. 4). 100 plaice were liberated on the 27th of April 1907 south of Horns Reef, at lat. 55° 27′ N, long. 7° 56′ E., at 11—13 metres depth.

During April, May and June 3, 299 and 9 specimens respectively were recaptured. The localities of capture for May are fairly evenly distributed in different directions. Those for June all lie to the north-west of the place of liberation, and in nearly every case north of the reef, despite the fact that a large part of the Danish cutter fleet fished south of the reef during this month (*vide* p. 38). During July and August, the migration appears to have been continued in a westerly and north-westerly direction, towards deeper water. In November, a male of 31 cm in length, nearing maturity, was taken on the outer grounds of Horns Reef, at a depth of 30—32 metres. Four specimens taken between Horns Reef and the Dogger Bank at 40—45 metres depth in August, September and November 1907 and April 1908 measured as follows: ♂ 27 cm, ♀ 31 cm, ♀ 31 cm and ♀ 35.5 cm in length. As to their maturity nothing is known. Five other specimens from Horns Reef, 18—24 metres depth, taken during the months from August 1907 to January 1908, averaged somewhat smaller (*vide* p. 44).

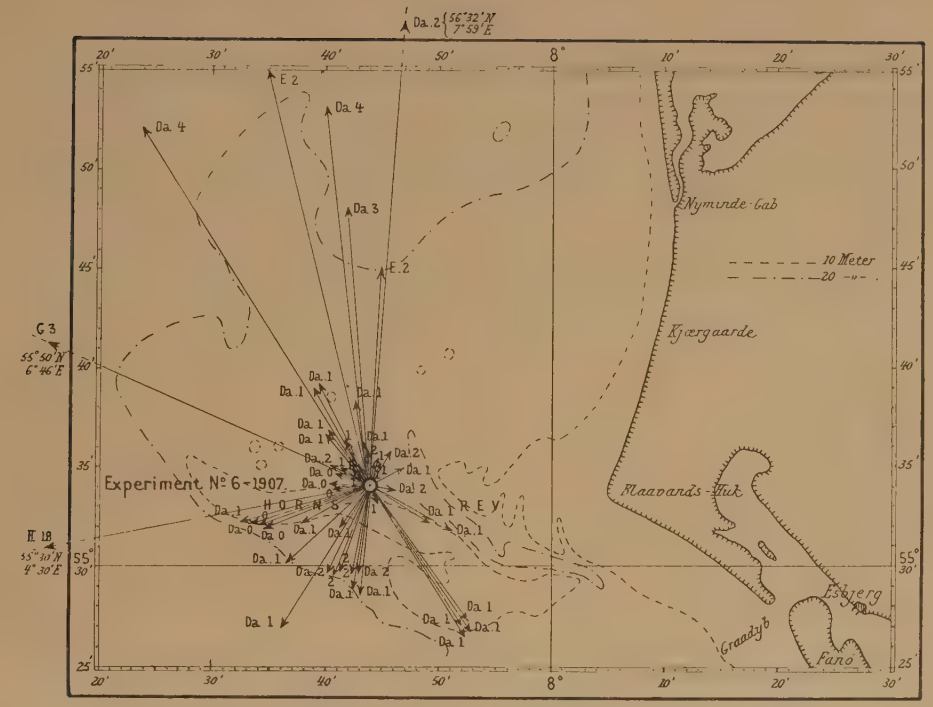


Fig. 5. Marking experiment No. 6, 1907. April 29. (See p. 4. D.)

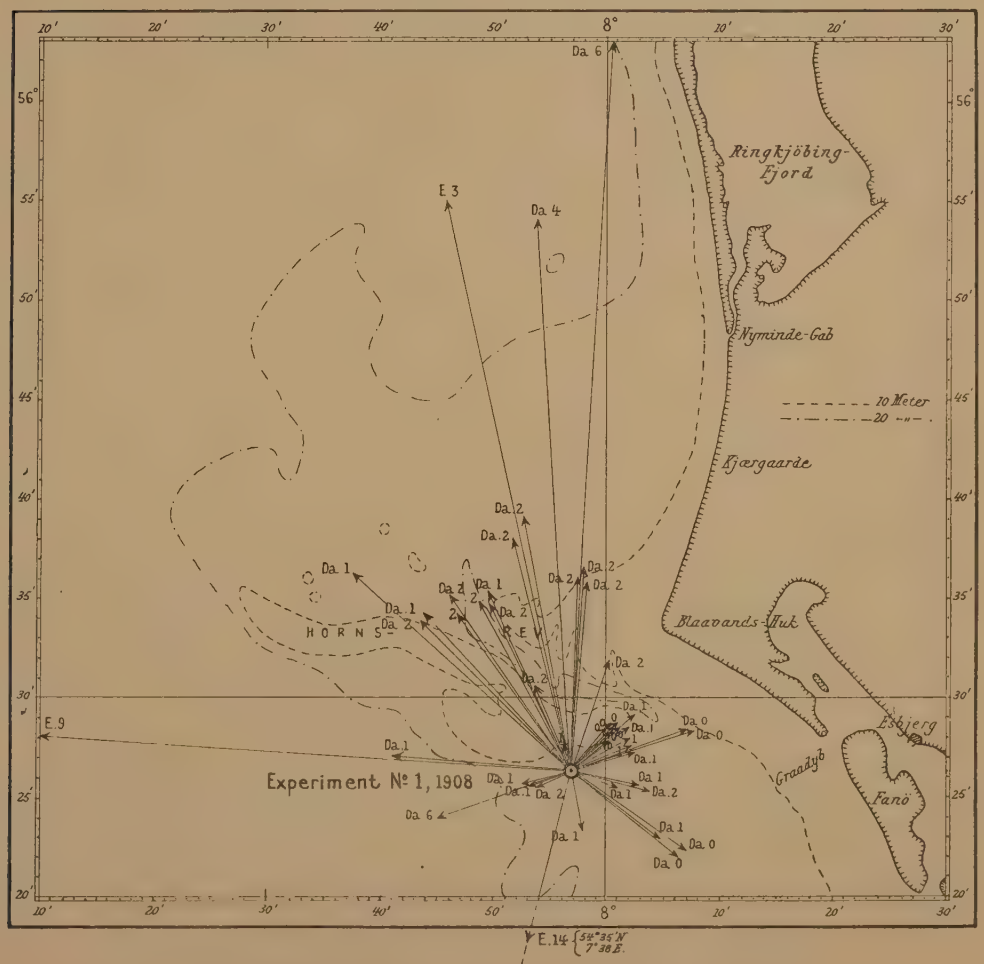


Fig. 6. Marking experiment No. 1, 1908. March 17. (See p. 4. D.)

Marking experiment No. 6, 1907 (Fig. 5) 100 plaice were liberated on the 29th of April 1907 north of Horns Reef at lat. 55° 34′ N, long. 7° 44′ E. depth 11—12 metres.

On the very next day (April 30) 7 were recaptured, during May 30 and in June 14. The known localities of capture for July—August, embracing in all 4 specimens, lie without exception to the north-west of the

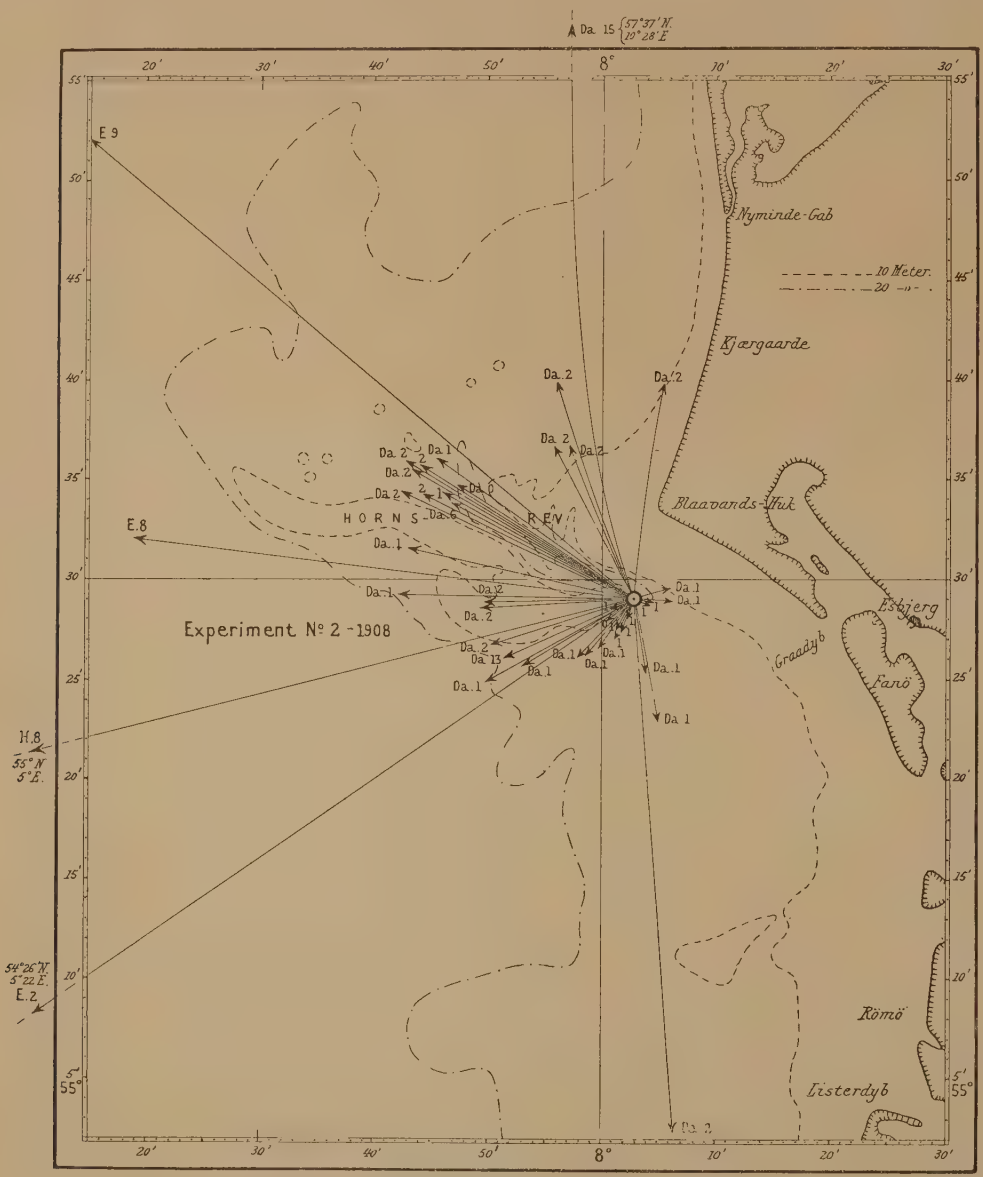


Fig. 7. Marking experiment No. 2, 1908. March 17. (See p. 4. D.)

place of liberation, in deeper water. As will be seen from the survey on p. 38, the Danish fishing fleet works mainly in this direction. In April 1908, a year after liberation, a female of group IV, 33 cm long, was taken in the Kattegat, and in October of the same year a male of 39 cm was taken on the north-eastern part of the Dogger Bank.

Marking experiments No. 1 and 2, 1908 (Fig. 6 and 7). 150 plaice were liberated on the 17th March 1908 south of Horns Reef in the vicinity of Cancer, at 13 metres depth.

The percentage of recaptures in March, April and May was 8.67, 24 and 18.67 % respectively. Almost all the March recaptures were made nearer to the coast than the place of liberation; not, however, as a rule, at any great distance from the same. In April also, the captures were, on the whole, made comparatively close to the place of liberation. The specimens which had covered the greatest distance had moved in a north-westerly direction.

During May, the migrations were evidently directed towards north and north-west. Only a single individual was taken near the coast, off Kærgaarde.

In June and July, only two specimens were recaptured, both outside Ringkøbing Fjord, which lies far to the north of the place of liberation, although most of the Danish cutters were then fishing close to Horns Reef and south of same (*vide* p. 39).

During September, 4 specimens in all were recaptured; 1 outside Ringkøbing Fjord and the remainder near Horns Reef, these last having probably returned after moving out into deeper water in the North Sea.

In November and December, 4 specimens were taken by English and Dutch trawlers between Jutland and the Dogger Bank at depths of from 28 to 38 metres. The lengths were as follows: ♀ 28.5, ♀ 30.5, ♂ 32, ♂ 27. The last one is stated as immature; in the case of the others, nothing is known as regards maturity.

In April 1909 a female only 22.5 cm long was taken SE of Vyl Buoy at 19 metres depth.

One specimen recaptured in June 1909 was taken in Aalbæk Bay, in the Kattegat.

Marking experiments No. 2 and 3, 1909 (Figs. 8 and 9). 100 plaice were liberated off Romø at 17 metres depth and 100 off Sylt at 20 metres, on the 24th and 25th April 1909.

These two marking experiments were made at a more southerly point than the corresponding experiments in the previous years. During the six remaining days of April, 8 of the fish liberated were recaptured, making 4 %. All were taken close to the place of liberation.

During the month of May, no fewer than 47 specimens (23.5 %) were recaptured. It is highly characteristic that almost all the captures in the more southerly experiment were made to the east and north-east of the place of liberation, whereas in the northern experiment, the great majority lie to the north and south of the corresponding point. During this month, a considerable number of Danish cutters fished in the vicinity of Heligoland, without taking any of the fish liberated (*vide* p. 39).

In June, 18 specimens (9 %) were recaptured, three of these being taken south of the place of liberation, the remainder north and west of same.

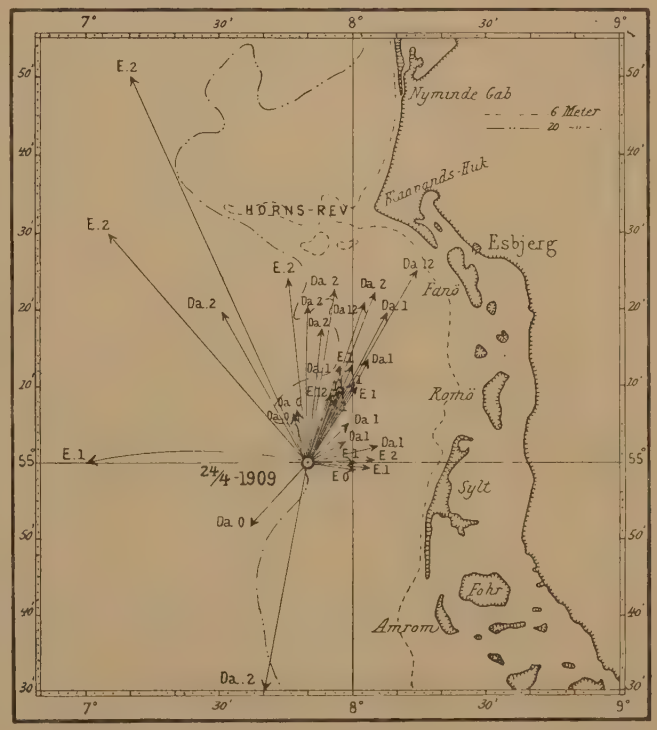


Fig. 8. Marking experiment No. 2, 1909. April 24. (See p. 4. D.)

In July 1909, nearly the whole of the Danish cutter fleet was fishing in the North Sea north of Horns Reef. In spite of this, only one marked plaice was sent in by Danish fishermen, two having, however, been taken by German fishing vessels off Heligoland.

In August, a male of about 29 cm length was taken at about 47 metres depth between Horns Reef and the north-east point of the Dogger Bank.

In October, two specimens were taken by English trawlers; one, a ♂ of 34 cm length, on the north-east point of the Dogger Bank, the other south of the light-ship at Horns Reef.

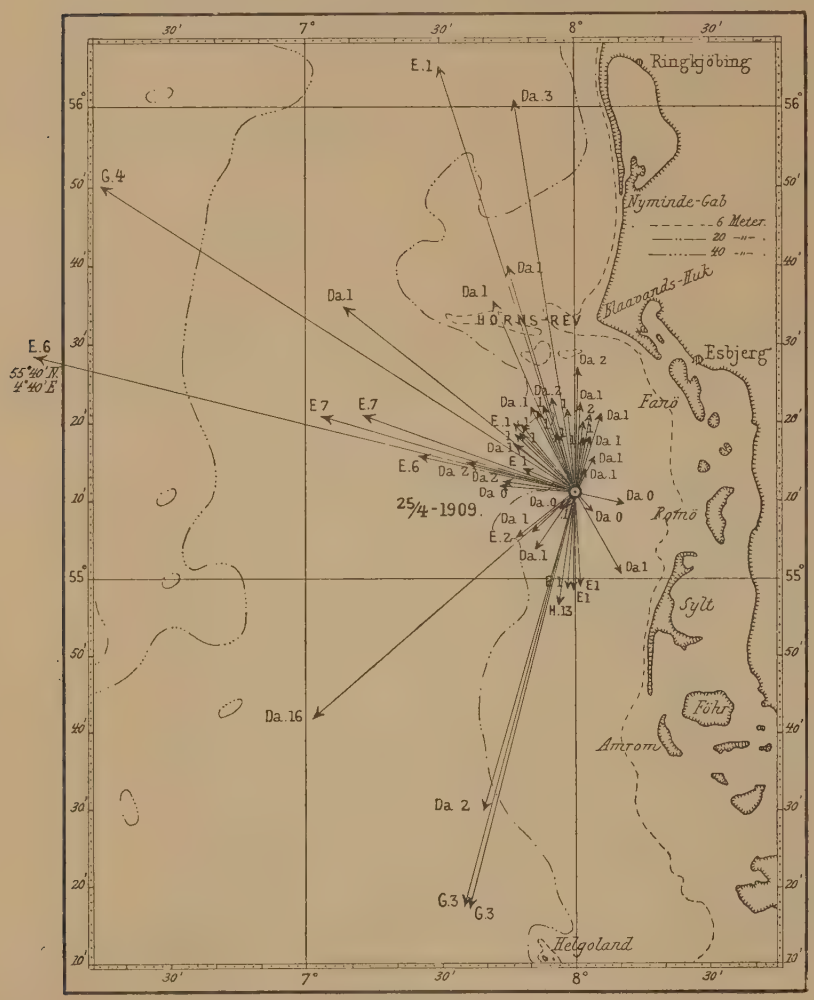


Fig. 9. Marking experiment No. 3, 1909. April 25. (See p. 4. D.)

In November, two immature females, of 28.5 and 32 cm length were taken south west of Horns Reef at 30 and 23 metres depth respectively.

Among the later recaptures it should be noted that a female of 45.5 cm was taken north of Hanstholm in August 1911 (Fig. 16). It had increased 20.5 cm in length.

Marking experiment No. 1, 1910 (Fig. 10 and 11). 100 marked plaice were liberated off Romø, at 19 metres depth, on the 17th of March 1910.

Of these, 23 were recaptured in March, and 24 in April.

The localities of capture for April lie on the whole nearer the coast than the place of liberation, which seems to point to a migration in towards land. Some specimens, however, moved out as early as April towards deeper water, and one fish, of 25 cm length, was taken as far west as the Dogger Bank. The localities for May lie partly in the vicinity of place of liberation, partly at a considerable distance thence, in northerly and north-westerly direction. In June, 5 were recaptured north of the place of liberation, and 4 south of same. The 5 specimens recovered in July were all taken in deeper water than where liberated, whereas 5 recaptured in the spring of 1911 were all taken at a short distance from the place of liberation (Fig. 11).

Marking experiment No. 2, 1910 (Fig. 10 and 11). 100 marked plaice were liberated at a spot 2 miles east of Graadeep light-ship, at 11 metres depth (Area A_8).

During March, 5 were recaptured; in April 29, and in May 14. The great majority of these individuals had evidently moved during these months in a north-westerly direction up towards Slugen and Horns Reef, some being taken north of the reef in April and May. In June, 9 specimens were

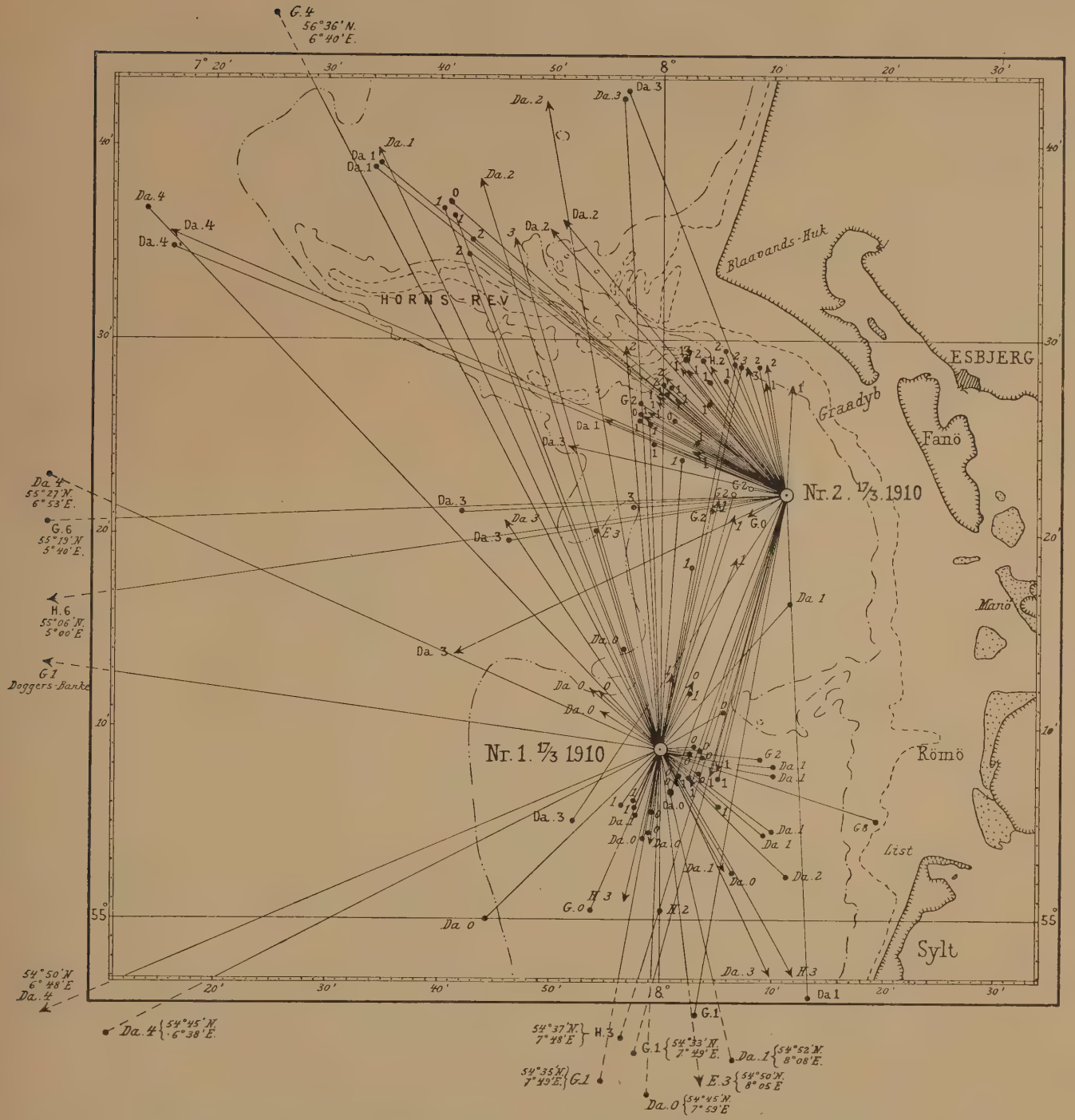


Fig. 10. Marking experiments with plaice in March 1910. Females denoted by a spot, males by an arrow head. Recaptures within one year after liberation. (See p. 4. D.)

recaptured, all at places lying, so to speak, farther out at sea than the place of liberation (with one exception, at depths between 17 and 23 metres). In July, two specimens were taken at 32 metres depth close to Horns Reef light-ship. In September, two were taken at 50 metres depth between the outer

Horns Reef grounds and the Dogger Bank. During the months from October to March, not a single fish was recovered; in April and May 1911, however, 3 more specimens were brought in. Two at least of these were taken close to Horns Reef. In December, a female of 40.5 cm length was taken at 56° 10′ N, 5° 20′ E. and in February 1912, a male was taken not far from the English coast at 54° 26′ N, 0° 23′ E. In all probability, both these fish were mature; in the case of the male, this is almost certainly the case.

Finally, one specimen, a female of 44.5 cm, was taken in August 1912 at 56° 24′ N, 6° 30′ E.

Marking experiment No. 1, 1911 (Fig. 12). 100 marked plaice were liberated off the west coast of Jutland, outside Kærgaarde, at 10 metres depth (Area A_3) on the 19th of April 1911.

The first recapture was made on the 2nd of May, and in the course of that month 53 specimens were recovered in all, these being, with the exception of 6, all taken at spots situate to the north of the

Fig. 11. Marking experiments with plaice in March 1910. Females denoted by a spot, males by an arrow head. Recaptures more than one year after liberation. (See p. 4. D.)

place of liberation. A sector of a circle of 60° includes a total of 47 recaptures for this month. Had the fish migrated equally in all directions, this sector would have contained only about 17 specimens.

The captures from June 1911 to August 1912 present no features of particular interest; in April 1913, however, a specimen was taken close to the place of liberation, at abt. 15 metres depth. It had only grown from about 22 to about 26 cm.

Marking experiment No. 2, 1911 (Fig. 13). 100 marked plaice were liberated off the west coast of Jutland north of Horns Reef at 15 metres depth on the 19th of April 1911.

During the month of May, 35 specimens were recaptured, nearly all close in to land, and to the north-east of the place where liberated. Two of these fish were retaken in Ringkøbing Fjord.

In June and July, 4 specimens were taken close to the place of liberation and in April and May 1912, 6 specimens near the same. The lengths of the last ones were as follows: ♂ 27.5, 30 cm; ♀ 25, 26, 26.5, 27.5 cm. These fish had probably not attained maturity.

Marking experiment No. 1, 1912 (Fig. 14). 100 marked plaice were liberated close outside Graadeep Bar, at 11 metres depth, on the 14th of April 1912.

During the month of April, 9 of these fish were recaptured. As only very little fishing was done

inside the 11 metre line, it is but natural that most of the places of capture should lie in deeper water than the place of liberation.

In May, 6 specimens were recaptured, all save one in deeper water than the place of liberation. During June and July the movement out towards deeper water was continued. The recaptures for the

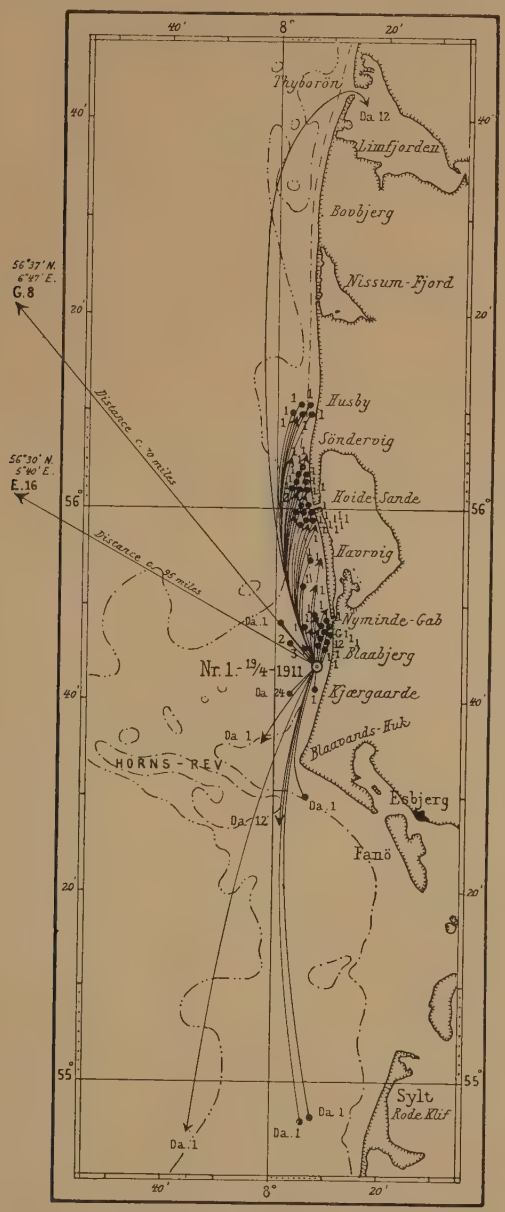


Fig. 12. Marking experiments with plaice in April 1911. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

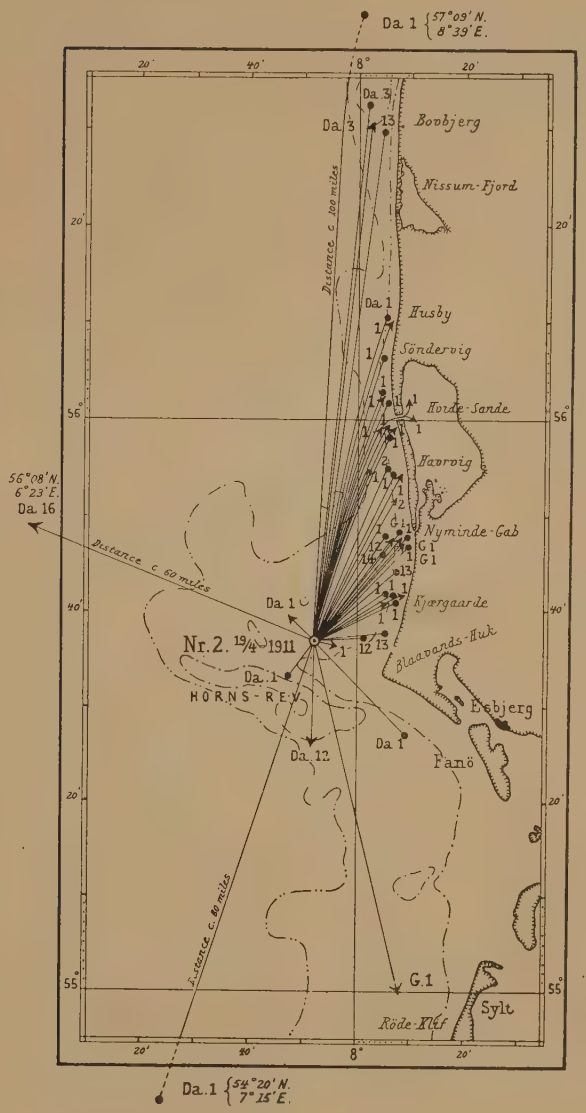


Fig. 13. Marking experiments with plaice in April 1911. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

months from August to October lie at depths between 23 and 36 fathoms, with the exception of a single instance in the last-named month, this being close to the place of liberation, at 9 metres depth. In April and May 1913, the places of capture are all, as far as known, in shallow water, between 9 and 15 metres, while 2 recaptures were made in June at depths between 17 and 30 metres.

Marking experiment No. 2, 1912 (Fig. 15). 100 marked plaice were liberated close to Graadeep Light-ship at 16 metres depth, on the 15th of April 1912.

Most of the recaptures for April were made at places closer in to land than the place of liberation, a single specimen even being taken far up in Hjerting Fjord. The localities for May lie more or less evenly distributed in all directions from the place of liberation, whereas in June, the majority lie to the north and north-west of this. In July, all the recaptures were made to the north-west of the place

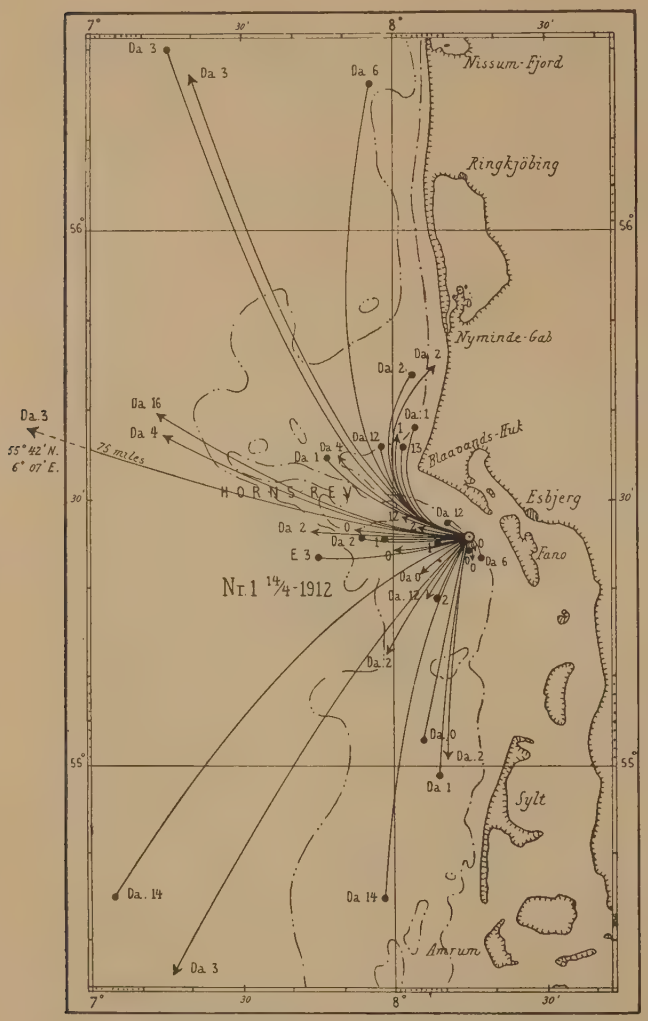


Fig. 14. Marking experiments with plaice in April 1912 (Nr. 1). Females denoted by a spot, males by an arrow head.
(See p. 4. D.)

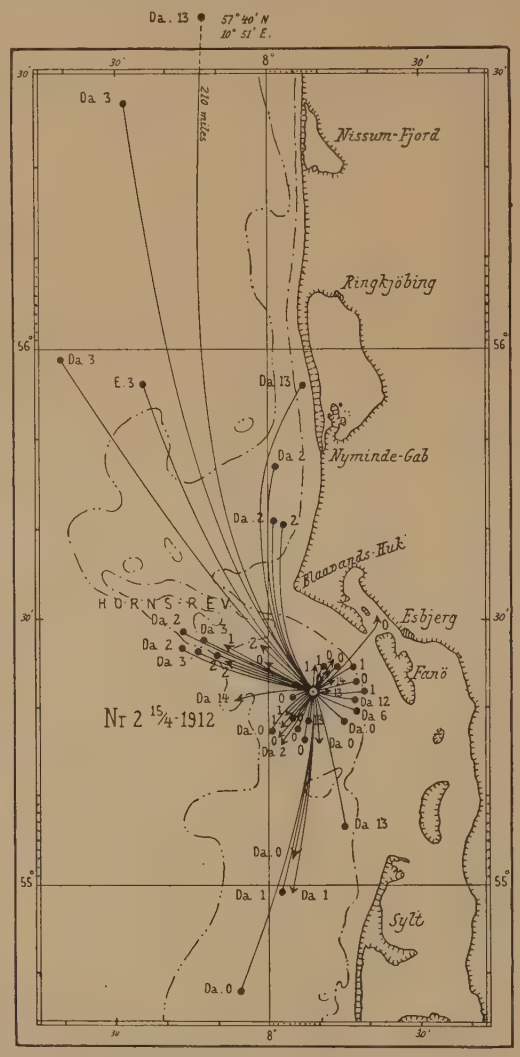


Fig. 15. Marking experiments with plaice in April 1912 (Nr. 2). Females denoted by a spot, males by an arrow head.
(See p. 4. D.)

of liberation, at depths between 17 and 30 metres. Most of the fish recovered in April, May and June 1913 were taken in the vicinity of Horns Reef, in A_3; one, however, in the northern part of the Kattegat.

Taking the migrations as revealed by the spring experiments in the Horns Reef area as a whole, we arrive at the following result:

During March, and to some extent also in April, a migration from deeper towards shallower water takes place. In May, the migration lies for the most part in a northerly and north-westerly direction, and in June it is mostly westerly, towards the deep water.

During the months of July, August and September, the fish are chiefly taken at considerable depths; from about 25—50 metres. In October and November, a return movement towards the Horns Reef grounds may be observed in the case of a number of individuals, others, however, still keeping to greater depths. During the months of December, January and February, many of the immature fish are doubtless once more in the Horns Reef area, but as the Danish cutters do not fish there at this time of year, only comparatively few specimens are retaken. More specimens are taken in deeper water, for the most part between Horns Reef and the Dogger Bank, and it is likely — though this has not yet been ascertained with certainty — that such of the plaice from Horns Reef as are not captured before attaining maturity spawn mainly in this place (Areas B_4 and C_2).

During the following spring, in April and May, most of the fish are again taken in the Horns Reef area, in A_3 and the inner portion of B_4; these, however, are not mature fish returning from their spawning grounds, but immature specimens (about

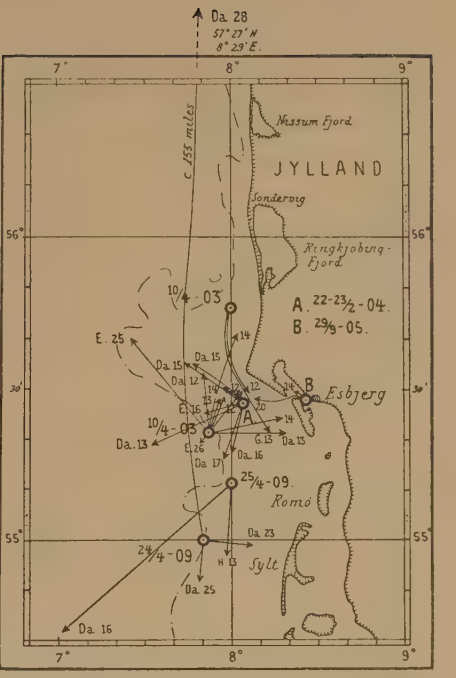


Fig. 16. Marking experiments with plaice in 1903, 1904, 1905 & 1909. Specimens which have borne their label for more than one year before recapture. (See p. 4. D.)

Mean depths in metres at the places of recapture in the various months.
(No. of specimens in brackets).

Experiment, No. and Date	No. 1 7. April 1906	No. 2 10. April 1906	No. 5 27. April 1907	No. 6 29. April 1907	No. 1 17. March 1908	No. 2 17. March 1908	No. 2 24. April 1909	No. 3 25. April 1909	No. 1 17. March 1910	No. 2 17. March 1910	No. 1 19. April 1911	No. 2 19. April 1911	No. 1 14. April 1912	No. 2 15. April 1912	March—April 1906—12
Depth at Place of Liberation	16 m	13 m	11—13 m	11—12 m	13 m	13 m	20 m	17 m	19 m	13 m	10 m	15 m	11 m	16 m	14—15 m (mean)
March	—	—	—	—	12.6 (11)	14 (2)	—	—	17.8 (23)	15.6 (5)	—	—	—	—	16.0 (41)
April	14.1 (29)	16.2 (30)	15.3 (3)	11.9 (7)	14.5 (16)	13.7 (20)	18 (2)	17.8 (4)	16.3 (23)	15 (29)	—	—	14.2 (9)	14 (14)	14.9 (186)
May	14.9 (36)	13.8 (12)	14.7 (27)	15.3 (30)	15.9 (14)	17.8 (14)	19.7 (15)	19.7 (30)	14.8 (8)	13.8 (14)	10.1 (49)	12.7 (31)	13.7 (6)	12.4 (9)	14.6 (295)
June	19.4 (5)	22.5 (2)	16.2 (9)	17.5 (13)	24 (1)	—	22.4 (9)	19 (8)	16.8 (9)	19.2 (9)	13.5 (2)	13 (2)	16 (8)	17.1 (10)	18.0 (87)
July	22 (2)	—	16.5 (4)	28.3 (2)	24 (1)	—	—	30.7 (3)	37.8 (5)	32 (2)	16 (1)	19 (2)	32.8 (5)	24.8 (5)	27.4 (32)
August	42 (2)	45 (1)	32.5 (2)	23.5 (2)	—	—	—	47 (1)	—	50.5 (2)	—	—	28.5 (2)	—	37.2 (12)
September	31 (1)	—	27.3 (3)	—	19 (2)	20 (2)	—	—	—	—	—	—	—	—	23.9 (8)
October	30 (1)	—	—	—	—	—	—	29.5 (2)	—	—	—	—	16 (2)	11 (1)	22.0 (6)
November	37 (1)	—	36 (2)	—	—	34 (2)	—	26.5 (2)	29 (1)	—	—	—	—	—	32.4 (8)
December	—	—	19 (1)	—	28 (1)	28 (1)	—	—	—	—	47 (1)	—	—	—	30.5 (4)
January	47 (1)	—	21 (1)	—	—	—	—	—	—	—	—	—	—	—	34.0 (2)
March	—	—	—	—	—	—	—	—	13 (1)	—	—	—	—	—	13.0 (1)
April	32 (1)	—	43 (1)	13 (1)	—	19 (1)	16.7 (3)	—	17.7 (3)	15 (1)	10.5 (2)	16 (3)	12.5 (4)	15 (1)	17.1 (21)
May	—	—	—	—	25 (1)	—	—	17 (1)	13 (1)	17 (1)	—	12 (3)	9 (1)	14.8 (5)	14.7 (13)
June	—	—	—	—	—	17 (1)	—	—	—	—	—	15 (1)	23.5 (2)	17 (2)	18.8 (6)
August	—	—	—	—	—	—	36 (1)	38 (1)	—	—	43 (1)	41 (1)	30 (1)	—	37.6 (5)
October	—	—	—	33 (1)	—	—	—	—	—	—	—	—	—	—	33.0 (1)
December	—	—	—	—	—	—	—	—	—	52 (1)	—	—	—	—	52.0 (1)
February	—	—	—	—	—	—	—	—	—	67 (1)	—	—	—	—	67.0 (1)
March	—	—	—	—	—	—	15 (1)	—	—	—	—	—	—	—	15.0 (1)
April	—	—	—	—	—	—	—	—	—	—	15 (1)	—	—	—	15.0 (1)
May	—	—	—	—	—	—	13 (1)	—	—	—	—	—	—	—	13.0 (1)
August	—	—	—	—	—	—	63 (1)	—	—	46 (1)	—	—	—	—	54.5 (2)
Mean Depth m (No. of specimens in brackets)	17.1 (79)	16.5 (45)	18.0 (53)	16.4 (56)	15.6 (47)	16.8 (43)	21.5 (33)	21.5 (52)	18.3 (74)	18.8 (66)	11.6 (57)	13.9 (43)	18.2 (40)	15.7 (47)	

22—35 cm long) which have doubtless for the most part spent the previous summer in somewhat deeper water, returning in the autumn to the Horns Reef area.

As shown in Figs. 7—16, not a few plaice are retaken near the Horns Reef after a period of one year or more [1]).

The table on p. 17, showing mean depths of the captures for the different months, will further serve to illustrate the observations already made as to migration.

2. Marking experiments in the summer months.

Marking experiments during summer have only been carried out at Horns Reef in a single year, viz. 1911. In this year, on the 17th June, two experiments were made SW of Graadeep Bar at 20 and 22 metres depth, with 100 and 50 individuals respectively.

In the first of these experiments, no less than 31 specimens were recaptured in the same month. Nearly all of these were taken at spots lying south and west of the place of liberation (Fig. 17). In July, 2 were recovered near the original spot, and in August 5 others to the north and north-west of same, 33—48 nautical miles distant. In September, one specimen was taken at about 40 metres depth at 54° 54′ N 6° 48′ E. In May 1912, 9 specimens were taken in A_3 off Fanø and Sylt, all at lesser depths than the place of liberation.

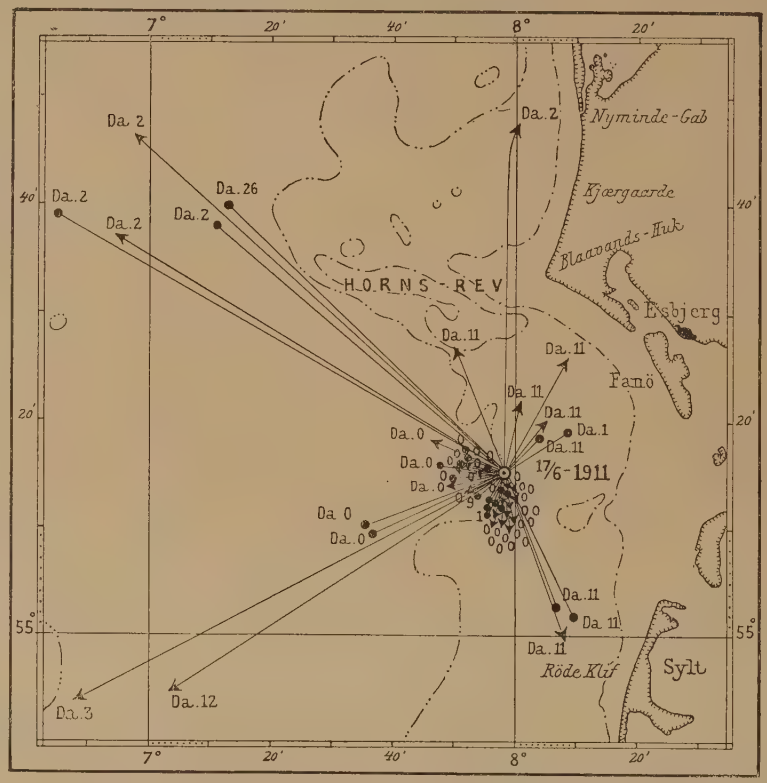


Fig. 17. Marking experiment with plaice (No. 3) in June 1911. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

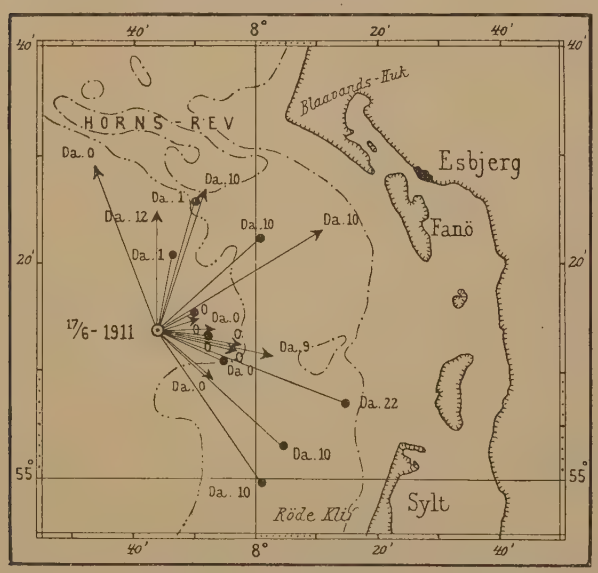


Fig. 18. Marking experiment with plaice (No. 4) in June 1911. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

In the second experiment (Fig. 18) 9 specimens were taken in June, all to the east of the place of liberation. This is, however, doubtless not to be regarded as indicating any tendency to migration towards shallower water in this locality, being merely due to the fact that the fishery during this month was far more intensively carried on immediately to the east than immediately to the west of the place of liberation.

In March and April 1912 and in April 1913,

[1]) Compare also Figs. 2 and 3 in A. C. Johansen: Dritter Bericht über die Eier, Larven und aelteren Stadien der Pleuronectiden in der Ostsee. Cons. perm. intern. Rapports et Procès-Verbaux. Vol. XIV. 1912.

7 specimens were taken in A_3 off Fanø — Sylt, all in shallower water than the place of liberation.

These experiments confirm the general impression obtained from the migrations as revealed by the spring experiments (*vide* p. 16—18). They show, however, that the migrations in early summer in the Horns Reef area do not always tend continually in the direction of deeper water. It is only the main or resulting movement which is directed outwards. In addition, these experiments distinctly show that many of the plaice taken in spring on the Horns Reef grounds have during the previous summer been out in the deeper water of the North Sea.

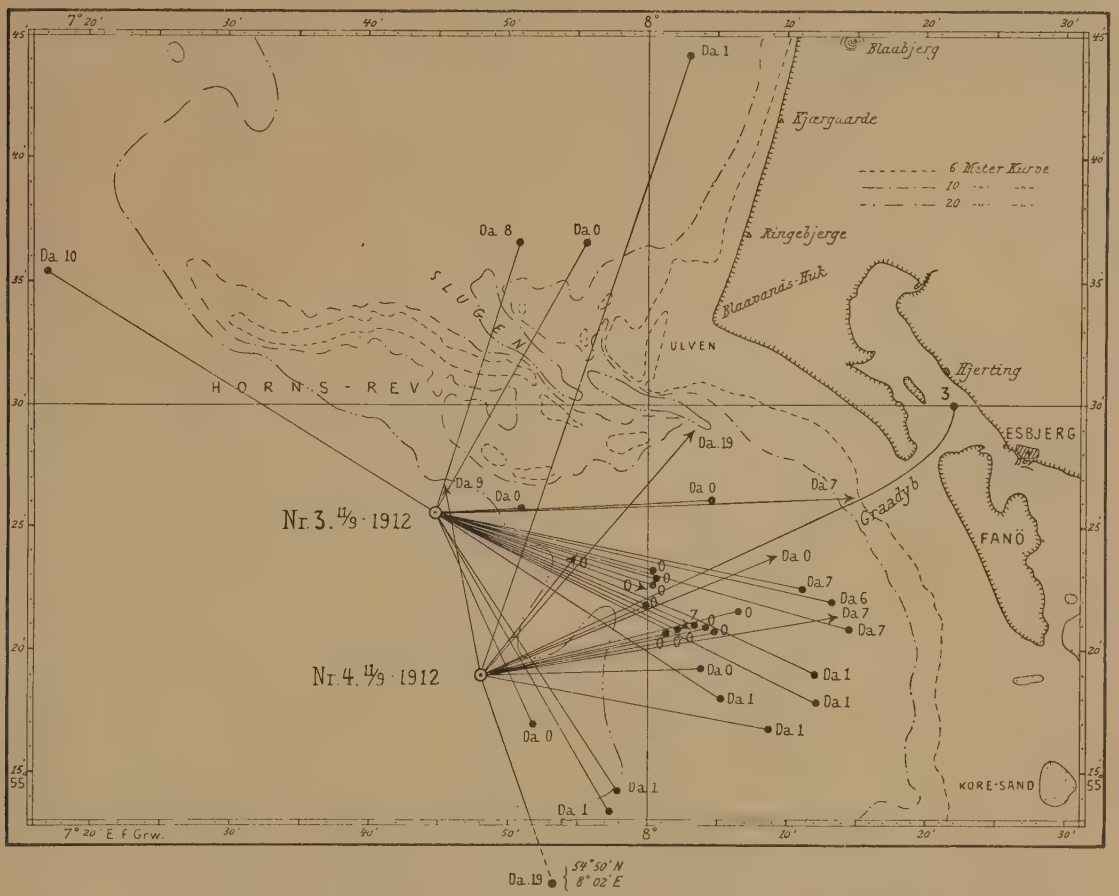


Fig. 19. Marking experiments with plaice in September 1912. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

3. Marking experiments in the autumn months.

Experiments in Area B_4 south of Horns Reef (Fig. 19).

On the 11th September, 1912, 150 marked plaice were liberated in the vicinity of Vyl Light-ship; 75 at 21 metres depth and 75 at 25 metres. In the course of September and October, 18 and 7 respectively were recaptured, all at depths between 15 and 19 metres. In the one experiment, 9 specimens were taken within a sector of a circle of 12° east of the place of liberation. Had the fish moved equally in all directions, this sector would have contained only 2 or 3 individuals. The experiments thus distinctly indicate a tendency on the part of the plaice here to move in towards shallower water during the months of September and October.

In December, a female 24 cm long was taken in Hjerting Fjord. During the months from March to May, 6 specimens were recovered in Area A_3 at depths between 8 and 15 metres. These specimens measured 23 to 28 cm, and were doubtless all immature. It is thus evident that a large number of the fish taken in quite shallow water at Horns Reef in the spring have in the beginning of the previous autumn stayed in deeper water.

The same feature may be noted in a series of the German marking experiments; *e. g.* Nos. 77 and 79 of 11th and 12th October 1908. These experiments were made at 55° 32′ N, 5° 40′ E, 50 m, and 55° 50′ N, 5° 20′ E, 52 m, with 104 and 102 specimens respectively, of which 16 and 15 were recaptured. In the first of these experiments, one specimen was taken in April 1909 close to Horns Reef at 25 metres depth, another on the 4th of June, 15 nautical miles W by S of Red Cliff at

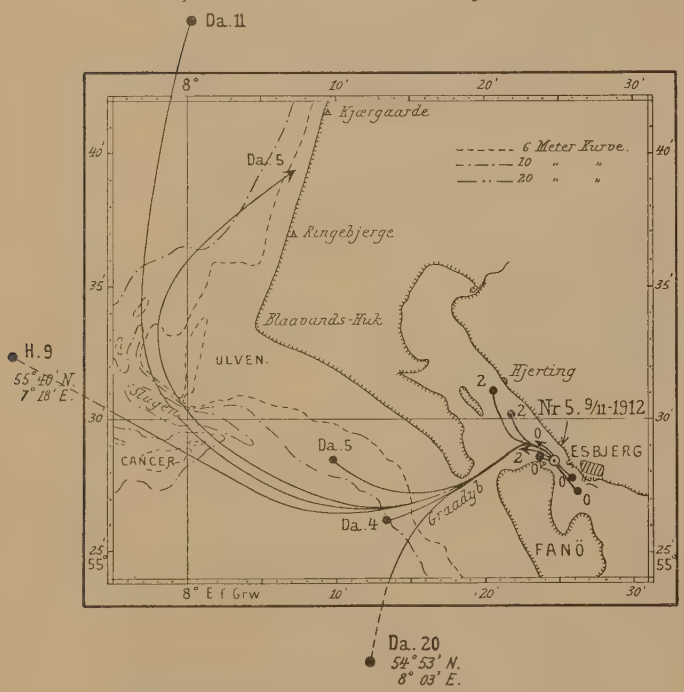


Fig. 20. Marking experiment with plaice in November 1912. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

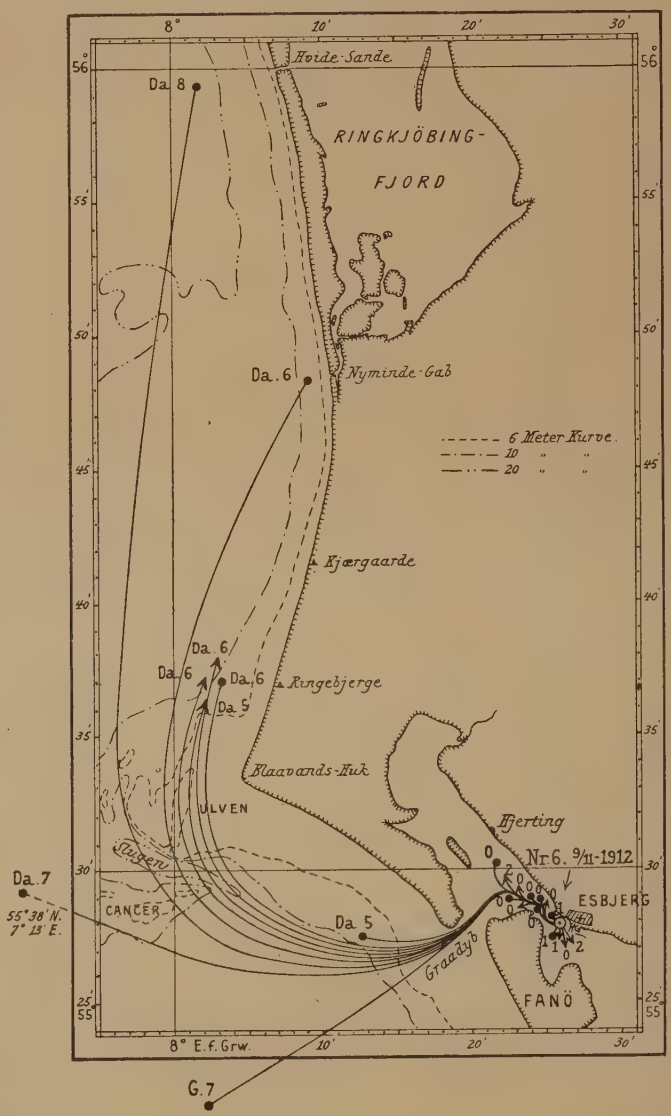


Fig. 21. Marking experiment with plaice in November 1912. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

about 18 metres. In the other experiment, 2 specimens were taken in Area A_3 close to Horns Reef in April and May 1909 [1]), one of them at only 9 metres depth. Also some of the English experiments show the same feature [2]).

Experiments in Hjerting Fjord (Area A_3; Figs. 20 and 21).

On the 9th of November 1912, 100 marked plaice were liberated in Hjerting Fjord near Esbjerg at 6—10 metres depth. During the first three months after liberation, 21 specimens in all were recaptured,

[1]) A. C. Reichard: Die deutschen Versuche mit gezeichneten Schollen. III Bericht 1910.
[2]) G. T. Atkinson: Report on the English Plaice marking experiments, 1906—1908. Exper. No. 70—72.

all in Hjerting Fjord. Fifteen fish subsequently recovered were, however, all found in the North Sea, for the most part at places north and north-west of Graadeep. Of these 15 individuals, 13 were taken by Danish fishermen, one by Dutch and one by German.

4. Do the males exhibit any tendency to make longer migrations than the females?

REICHARD has, on the basis of certain of the German marking experiments, suggested that the males tend to make longer migrations than the females [1]). In our chart of the migrations for the experiments from 1910—12 the sexes have been separately noted; no very appreciable difference is, however, here apparent in regard to the length of the migrations (Figs. 10—21). I have further investigated the question as to how many individuals of either sex are known to have been recaptured at distances over 100, 50 and 30 miles respectively from the place of liberation, with the following result; of 751 males recaptured during the ordinary marking experiments in the Horns Reef Areas (A_3 and B_4) in 1903—1912, ten are known to have travelled more than 100 miles from place of liberation, 42 more than 50 miles and 93 more than 30 miles. Of 854 females taken during the same experiments, 10 are known to have travelled over 100 miles from place of liberation, 36 over 50 and 82 over 30 miles. Worked out per thousand fish, the figures are as follows:

	Males	Females
Over 100 miles from place of liberation	13	12
- 50 — — —	56	42
- 30 — — —	124	96

These figures might, it is true, lead one to believe that the males actually do tend to make longer migrations than the females; the apparent difference is, however, probably rather to be explained as due to the fact that the males will on an average have been nearer maturity than the females, and thus have moved at an earlier date than these out towards the spawning grounds, which on the whole are situated in deeper water than the places of liberation, and at considerable distance from the same. Many of the females will doubtless have lost their marks before commencing their spawning migrations.

Experiments which I have made on or near the spawning grounds in the Baltic [2]) indicate that the females there appear to make, on an average, migrations at least as long as those of the males.

C. Percentage of marked fish recovered.

1. Marking experiments in the spring months.

It will be seen from Tables 2 and 3, that of 1350 fish liberated during the spring months of 1906—1912, 770 — or 57 % — were recaptured. The percentage of males recaptured is 54.7, of females 58.9 This difference in the percentages is partly connected with the fact that there is a difference in size between the sexes. The females were, when liberated, already somewhat superior to the males in point of size (*vide* Table 2) and this difference was greater on recapture. From the figures in Table 3, we may conclude that the percentage of specimens recaptured within the size groups there stated increases with increasing size of the fish. From Table 4 it will be seen that 26.1 % of the marked fish were retaken in course of the first month after liberation, and 43.6 % in the first two months. After this, there is a strong decrease in the percentage recovered, only 53.1 % being taken within the first year after liberation.

[1]) A. C. REICHARD: Die deutschen Versuche mit gezeichneten Schollen, II Bericht. Wissen. Meeresunters. N. F. Bd. 9. Abt. Helgoland 1908.

[2]) A. C. JOHANSEN: Contributions to the Biology of the Plaice V (Figs. 2—4) Meddelelser fra Kommissionen for Havundersøgelser; Serie Fiskeri, Bd. IV, 1912.

From Table 5 it will be seen that of all fish recaptured, 45.7 % fall to the first month after liberation. It is interesting to note that after the introduction of a new kind of mark, in 1907 and 1908, the percentage of specimens recaptured after the lapse of more than a year has increased.

In the spring experiments for the years 1906—1912 all the fish were liberated in Area A_3 at depths between 11—20 metres. As will be seen from Table 6, 90.7 % of those fish whose place of capture was known were taken in Areas A_3 and B_4, and 6.3 % in Areas A_4 and B_5, with 2 % in C_2. In the remaining areas of the North Sea, only 0.6 % were taken, and in the Kattegat 0.4 %.

Arranged in order of depth, the percentage of recaptures is as follows:

0— 9.9	metres	10.3 %
10—19.9	—	72.4 -
20—24.9	—	8.2 -
25—29.9	—	1.7 -
30 metres and over	.....	7.4 -

Table 2. Showing the size of plaice on liberation in March—April 1906—1912 and the specimens of the various size-groups recaptured.

	1906				1907				1908				1909				1910				1911				1912			
	♂		♀		♂		♀		♂		♀		♂		♀		♂		♀		♂		♀		♂		♀	
	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured	Liberated	Recaptured
20 cm	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—
21 -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
22 -	—	—	—	—	17	4	19	7	9	8	5	3	1	—	—	—	2	2	—	—	—	—	5	3	7	2	3	—
23 -	—	—	—	—	17	12	13	3	23	13	27	17	7	2	2	1	7	6	6	2	14	7	18	7	14	4	15	7
24 -	11	5	9	1	17	13	26	16	21	14	16	10	27	13	17	4	21	11	37	28	43	20	43	28	25	11	29	10
25 -	15	6	8	5	10	6	10	5	10	5	10	5	25	7	23	10	24	17	36	23	18	8	30	17	18	8	37	18
26 -	23	15	13	6	6	2	16	11	6	5	7	4	17	9	16	8	14	10	24	18	6	4	8	8	15	10	16	10
27 -	18	12	27	20	5	4	13	9	3	1	2	1	12	7	17	12	9	8	12	10	2	2	5	1	7	3	7	4
28 -	12	7	20	19	9	4	4	3	4	1	4	2	4	1	14	10	—	—	8	7	4	2	2	2	3	2	—	—
29 -	8	4	19	14	1	1	11	9	2	2	—	—	1	—	5	1	—	—	—	—	—	—	1	—	—	—	1	1
30 -	8	7	4	4	2	2	3	2	1	1	—	—	—	—	6	5	—	—	—	—	1	—	—	—	—	—	1	1
31 -	3	3	1	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—
32 -	—	—	1	1	—	—	1	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—
33 -	—	—	—	—	—	—	—	—	—	—	—	—		—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
34 -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35 -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Average length . .	26.78	—	27.23	—	24.46	—	25.09	—	24.28	—	24.13	—	25.15	—	26.50	—	24.88	—	25.19	—	24.50	—	24.41	—	24.51	—	24.73	—

Table 3. Showing the percentage of recaptured plaice of the various size-groups in the marking experiments in the Horns Reef area in March—April 1906—1912.

	♂			♀			♂ + ♀		
	No. of liberated	No. recaptured of those in the previous column	%	No. of liberated	No. recaptured of those in the previous column	%	No. of liberated	No. recaptured of those in the previous column	%
20—24 cm .	285	148	51.9	290	147	50.7	575	295	51.3
25—29 - .	311	173	55.6	426	273	64.1	737	446	60.5
30—35 - .	16	14	87.5	22	15	68.2	38	29	76.3
20—35 cm .	612	335	54.7	738	435	58.9	1350	770	57.0

Table 4. Showing the percentage of marked fish recaptured within different periods of time.

	No. of specimens liberated	Percentage of recaptured specimens			
		in one month	in two months	in a year	total until 1. Nov. 1914
Mark. experim. April 1906	200	32.5	57.0	64.0	64.5
— — 1907	200	33.0	46.0	55.5	56.5
— March 1908	150	27.3	48.0	58.0	61.3
— April 1909	200	18.5	36.5	43.5	46.5
— March 1910	200	34.0	46.5	65.5	71.0
— April 1911	200	22.5	46.0	49.0	54.5
— — 1912	200	15.0	26.5	37.5	46.0
Mark. experim. 1906—12	1350	26.1	43.6	53.1	57.0

Table 5. Showing the distribution of recaptures within different periods of time.

	No. of specimens recaptured	Distribution of recaptured specimens				
		in the first month	in the second month	in the 3—12 months	after one year	
Mark. experim. April 1906	129	50.4 %	38.0 %	10.9 %	0.7 %	100 %
— — 1907	113	58.4 -	23.0 -	16.8 -	1.8 -	100 -
— March 1908	92	41.6 -	33.7 -	16.3 -	5.4 -	100 -
— April 1909	93	39.8 -	38.6 -	15.1 -	6.5 -	100 -
— March 1910	142	47.9 -	17.6 -	26.8 -	7.7 -	100 -
— April 1911	109	41.3 -	43.1 -	5.5 -	10.1 -	100 -
— — 1912	92	32.6 -	25.0 -	23.9 -	18.5 -	100 -
Mark. experim. 1906—12	770	45.7 %	30.8 %	16.6 %	6.9 %	100 %

Table 6. Showing the number of marked plaice caught in different parts of the sea and originating from the marking experiments in the Horns Reef Area (A_3) in the years 1906—12.

	Total No. caught. Place of recapture known	Caught in the North Sea Areas A_3 B_4	Caught in the North Sea Areas A_4 B_5	Caught in the North Sea Area C_2	Caught in the North Sea Area B_1	Caught in the North Sea Area D_1	Caught in the Kattegat
Marking experiment No. I 1906 . .	79	75	1	2	1	—	—
— No. II — . .	45	44	—	1	—	—	—
— No. V 1907 . .	53	50	1	1	1	—	—
— No. VI — . .	56	53	1	—	1	—	1
— No. I 1908 . .	47	46	1	—	—	—	
— No. II — . .	43	41	—	1	—	—	1
— No. II 1909 . .	35	34	—	1	—	—	—
— No. III — . .	51	48	2	1	—	—	—
— No. I 1910 . .	75	72	—	2	1	—	—
— No. II — . .	66	61	—	4	—	1	—
— No. I 1911 . .	62	37	23	2	—	—	—
— No. II — . .	46	32	14	—	—	—	—
— No. I 1912 . .	40	37	3	—	—	—	—
— No. II — . .	48	46	1	—	—	—	1
Total No. 1906—12 . . .	746	676	47	15	4	1	3
Percentage . . .	100 %	90.7 %	6.3 %	2 %	0.5 %	0.1 %	0.4 %

Table 7. Showing the number of marked plaice caught in the North Sea by vessels of various nationalities and originating from the marking experiments in the Horns Reef Area (A_3) in the years 1906—12 (March—April).

	Caught by Danish vessels	Caught by English vessels	Caught by German vessels	Caught by Dutch vessels	Total
Marking experiments 1906	112	12	5	—	129
— 1907	95	11	6	1	113
— 1908	83	8	—	1	92
— 1909	58	29	4	2	93
— 1910	114	5	16	7	142
— 1911	102	1	6	—	109
— 1912	88	4	—	—	92
Total No. 1906—12 . . .	652	70	37	11	770
Percentage . . .	84.7 %	9.1 %	4.8 %	1.4 %	100 %

Of all fish recaptured, 84.7 % were taken by Danish fishermen, 9.1 % by English, 4.8 % by German and 1.4 % by Dutch. All the recaptures within a range of depth from 0—9.9 metres of the west coast of Jutland were made by Danish fishermen. Table 8 shows the steadily increasing percentage

Table 8. The proportion of marked plaice caught by vessels of different nationalities at various depths in the North Sea. Marking experiments in the Horns Reef Area (A_3) in the years 1906—1912.

Nation	Year	0—9.9 m	10—19.9 m	20—24.9 m	25—29.9 m	30 m and above	Total Depth at place of recapture known
Denmark	1906	3	97	6	—	3	109
—	1907	3	84	6	—	1	94
—	1908	3	75	4	1	—	83
—	1909	—	41	13	1	3	58
—	1910	2	95	11	1	5	114
—	1911	57	39	3	—	1	100
—	1912	9	62	5	3	7	86
—	1906—12	77	493	48	6	20	644
		100 %	91.5 %	78.7 %	46.2 %	36.4 %	86.5 %
England	1906	—	5	1	1	3	10
—	1907	—	2	3	—	4	9
—	1908	—	—	1	3	2	6
—	1909	—	11	4	2	7	24
—	1910	—	2	—	—	2	4
—	1911	—	—	—	—	1	1
—	1912	—	—	1	—	1	2
—	1906—12	—	20	10	6	20	56
		—	3.7 %	16.4 %	46.2 %	36.4 %	7.5 %
Germany	1906	—	2	—	—	3	5
—	1907	—	—	3	—	2	5
—	1908	—	—	—	—	—	—
—	1909	—	1	—	—	3	4
—	1910	—	12	—	1	2	15
—	1911	—	5	—	—	1	6
—	1912	—	—	—	—	—	—
—	1906—12	—	20	3	1	11	35
		—	3.7 %	4.9 %	7.6 %	20.0 %	4.7 %
Netherlands	1906	—	—	—	—	—	—
—	1907	—	—	—	—	1	1
—	1908	—	—	—	—	1	1
—	1909	—	1	—	—	—	1
—	1910	—	5	—	—	2	7
—	1911	—	—	—	—	—	—
—	1912	—	—	—	—	—	—
—	1906—12	—	6	—	—	4	10
		—	1.1 %	—	—	7.2 %	1.3 %
Total . .		77	539	61	13	55	745
		100 %	100 %	100 %	100 %	100 %	100 %

of the fish taken by foreign vessels with increasing depth or distance from the coast. At a depth of abt. 25 metres, the captures of marked fish are almost equally divided between Danish and foreign fishermen.

The figures given below will serve to show the percentage of marked fish from the Danish experiments taken by Danish fishermen at the different depths during the two periods 1903—1905 and 1906—1912. From this it will be seen that the Danish fishery is exerting a continually increasing influence in the eastern part of the North Sea, both at depths between 20 and

30 metres (particularly the inner portion of B_4) and at depths over 30 metres (particularly the outer portion of B_4).

Percentage of marked fish recaptured by Danish fishermen in the eastern part of the North Sea:

	0—9.9 metres	10—19.9 metres	20—29.9 metres	30 metres and over
Period 1903—05.....	abt. 97.6 %	abt. 91.2 %	abt. 67.1 %	19.6 %
— 1906—12.....	100 -	91.5 -	73.0 -	36.4 -

2. Marking experiments in the summer months (1911)

Tables 9 and 10 indicate the sizes of the fish of either sex on liberation, and the number of specimens recaptured in each size group. Out of 150 specimens, 46.7 % in all were recaptured. As usual, the percentage of females recaptured is greater than that of the males, viz: 48.5 % as against 45.2 %. Of fish between 21—24 cm only 42.7 % were recaptured, whereas among those of 25—30 cm we find 60.6 % recaptured.

Of the total number marked, 29.3 % were recovered within a month of liberation, 31.3 % within 2 months, and 44 % within the year.

Table 9. Showing the size of plaice on liberation and the specimens of the various size-groups recaptured. June 1911.

	♂		♀	
	No. of specimens liberated	No. of specimens recaptured	No. of specimens liberated	No. of specimens recaptured
21 cm . .	11	—	3	2
22 - . .	28	6	20	10
23 - . .	17	12	16	7
24 - . .	10	7	12	6
25 - . .	10	7	6	2
26 - . .	5	5	4	2
27 - . .	1	—	2	1
28 - . .	—	—	2	1
29 - . .	1	—	—	—
30 - . .	1	1	1	1

3. Marking experiments in the autumn months (1912)

As shown in Tables 11 and 12, the autumn experiments in September and October 1912 gave only about 30 % of marked fish recaptured. Here again the percentage of females recovered exceeds that of the males, being 30.7 % as against 29.3 %.

Out of the total number of fish marked, 12.8 % were retaken within a month of liberation, 18 % within two months, and 28 % within the year.

Table 10. Showing the percentage of recaptured plaice of the various size-groups in the marking experiments in the Horns Reef Area (A_3). June 1911.

	♂			♀			♂ + ♀		
	No. of specimens liberated	No. of specimens recaptured	% recaptured	No. of specimens liberated	No. of specimens recaptured	% recaptured	No. of specimens liberated	No. of specimens recaptured	% recaptured
21—24 cm	66	25	37.9	51	25	49.0	117	50	42.7
25—30 -	18	13	72.2	15	7	46.7	33	20	60.6
21—30 cm . . .	84	38	45.2	66	32	48.5	150	70	46.7

D. Rate of growth of marked plaice

1. Marking experiments in the spring months.

As will be seen from Figs. 22—25 and Tables 13—19, the growth of the plaice in the Horns Reef area has varied greatly for the different years. True, with the relatively small number of individuals employed in the marking experiments, we cannot expect to arrive at fully reliable figures for the average growth of all fish corresponding in size to those here marked: there can, however, be no doubt that the present experiments do give some idea as to the variations in growth. The fish would seem to have grown very poorly during the years 1903, 1909 and 1912, *viz:* only 3—4.1 cm; somewhat better in 1904,

Table 11. Showing the size of plaice on liberation and the specimens of the various size-groups recaptured. Sept. and Novbr. 1912.

	♂		♀	
	No. of specimens liberated	No. of specimens recaptured	No. of specimens liberated	No. of specimens recaptured
19 cm . .	—	—	1	1
20 - . .	3	—	7	1
21 - . .	15	3	15	6
22 - . .	7	3	25	9
23 - . .	9	2	28	12
24 - . .	16	7	39	10
25 - . .	12	1	31	6
26 - . .	10	5	14	4
27 - . .	2	1	7	2
28 - . .	1	—	4	1
29 - . .	—	—	—	—
30 - . .	—	—	2	1
31 - . .	—	—	—	—
32 - . .	—	—	—	—
33 - . .	—	—	1	1
34 - . .	—	—	1	—

1906, 1908, 1910 and 1911, *viz* 4.5—6 cm, with a considerable improvement in 1905 to 1907, *viz* 7—8 cm. The mean annual growth for all years together may be taken as abt. 5.2 cm. Fig. 25 gives an illustration of the annual growth, reckoned from mid-April to mid-April during the period 1903—04 to 1912—13 [1]).

As to the cause of this inequality of growth for the different years, nothing is known with certainty. It is worthy of note, however, that since the English trawlers have to a great extent restricted their fishing on the Horns Reef grounds (1908—1910), the average annual growth appears to have become poorer throughout [2]). Probably the population of young plaice has increased considerably at the same time, so that the quantity of food available per fish has become less [3]).

2. Marking experiments in the summer months.

The summer experiments were carried out in the middle of a growth period, and cannot thus, as with the spring experiments, furnish information as to the increase in such a growth period. From two experiments made in June 1911 in the shallowest part of Area B_4, south of Horns Reef, we find that the average growth for fish of about 23 cm long until March

Table 12. Showing the percentage recaptured of plaice of the various size-groups in the marking experiments in the Horns Reef area A_3 and B_4. Sept. and Novbr. 1912.

	♂			♀			♂ + ♀		
	No. of specimens liberated	No. of specimens recaptured	% recaptured	No. of specimens liberated	No. of specimens recaptured	% recaptured	No. of specimens liberated	No. of specimens recaptured	% recaptured
19—24 cm	50	15	30.0	115	39	33.9	165	54	32.7
25—29 -	25	7	28.0	56	13	23.2	81	20	24.7
30—34 -	—	—	—	4	2	50.0	4	2	50.0
19—34 cm . . .	75	22	29.3	175	54	30.9	250	76	30.4

1912 amounts to barely 2 cm, and up to middle of June about 5 cm (*vide* Fig. 26 and Table 20). On considering the spring experiments from 1911, we find that the average growth of the fish here amounts to about 4.5 cm until the spring of 1912, which agrees very well with the summer experiments in 1911.

[1]) The present writer has on a previous occasion pointed out that there in the years 1903—08 appears to have been a certain connection between the mean growth of the plaice in the Horns Reef area and the yield of the Danish fishery at that place, the yield being comparatively large when the mean growth is high, and *vice versa*. Such a connection is not apparent for the years 1908—1912.

[2]) The age analyses for plaice caught in the Horns Reef area in April 1905 point in the same direction. Compare the Table p. 27 with the Tables 60—65 in the writer's »Schollenbericht« for 1910. (Medd. fra Komm. for Havundersøgelser, Serie Fiskeri, Bd. III, Nr. 8.)

[3]) The English capture of plaice in the Areas $A_3 + B_4$ in the years 1906—1913 was as follows (Annual Reports on Sea Fisheries, London): 1906 — 5,603,000 kg, 1907 — 7,799,000 kg, 1908 — 4,217,000 kg, 1909 — 4,470,000 kg, 1910 — 1,704,000 kg, 1911 — 577,000 kg, 1912 — 840,000 kg, 1913 — 1,479,000 kg. Besides these a much greater number of young small plaice are killed and destroyed by the trawling.

Length of Plaice caught in the Horns Reef Area (A_3) in April, 1915.

Place and Date . . . . . **West of Sylt** ca. 16 m. April 25, 1915

Sex	males									females						males and females					
Age group	III	IV		V	VI		VII	Total		III	IV	V	VI	VII	Total	III	IV	V	VI	VII	Total
Maturity	im	im	m	im	im	m	im	im	m	im	im	im	im	im	im	im	im + m	im	im + m	im	im + m
Length cm																					
23	—	—	—	1	—	—	—	1	—	—	—	1	—	—	1	—	—	2	—	—	2
24	2	1	1	2	—	—	—	5	1	—	1	—	—	—	1	2	3	2	—	—	7
25	1	2	—	3	6	—	—	12	—	1	2	7	1	—	11	2	4	10	7	—	23
26	—	2	—	5	15	—	1	23	—	—	1	6	6	—	13	—	3	11	21	1	36
27	—	—	—	3	6	—	—	9	—	1	—	10	3	—	14	1	—	13	9	—	23
28	—	—	—	3	7	1	—	10	1	—	2	5	6	—	13	—	2	8	14	—	24
29	—	—	—	3	3	1	—	6	1	—	—	10	11	—	21	—	—	13	15	—	28
30	—	—	—	2	3	1	1	6	1	—	1	2	6	1	10	—	1	4	10	2	17
31	—	—	—	—	1	—	1	2	—	—	—	1	11	2	14	—	—	1	12	3	16
32	—	—	—	—	1	—	—	1	—	—	—	2	7	1	10	—	—	2	8	1	11
33	—	—	—	—	—	—	—	—	—	—	—	—	5	—	5	—	—	—	5	—	5
34	—	—	—	—	—	—	2	2	—	—	—	—	2	—	2	—	—	—	2	2	4
35	—	—	—	—	—	—	—	—	—	—	—	1	2	—	3	—	—	1	2	—	3
38	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	—	1
Total	3	5	1	22	42	3	5	77	4	2	7	45	61	4	119	5	13	67	106	9	200
Average length (0.5 cm to be added)	24.3	25.2	24.0	26.7	27.1	29.0	31.0	27.0	27.8	26.0	26.6	27.6	30.1	31.0	28.9	25.0	25.8	27.3	28.9	31.0	28.2

Rate of Growth of plaice liberated in the Horns Reef Area A_3.

Table 13. April 1906.

Marking experiments No. 1—2.

Month recaptured	Period between liberation and recapture	Increase in cm			No. of specimens measured	Initial length in cm		
		Average	Minimum	Maximum		Average	Minimum	Maximum
1906 April	1—23 days	0	0	1	59	27.5	24	32
— May	1 month	0.7	0	3	50	27.2	24	31
— June	2 months	1.5	0	2	6	28.2	27	30
— July	3 —	3.5	3	4	2	25.5	24	27
— August	4 —	3 5	2	5	4	26.5	24	28
— Sept.	5 —	4.5	4	5	2	29	28	30
— Oct.	6 —	3	—	—	1	27	—	—
1907 Jan.	9 —	6	—	—	1	27	—	—
— April	12 —	6	—	—	1	29	—	—

Table 14. April 1907.

Marking experiments No. 5—6.

1907 April	1—3 days	0.1	0	0.5	10	25.3	23	29
— May	1 month	0.2	0	1.5	56	25.9	22.5	30.5
— June	2 months	1.4	0	5.5	22	24.9	22	30.5
— July	3 —	2.8	1	5	7	24.4	22	28.5
— August	4 —	4.4	3.5	5.5	4	23.9	23	24.5
— Sept.	5 —	3.8	2.5	5	3	23.5	22	26
— Nov.	7 —	5.3	4.5	6	2	25.8	25	26.5
— Dec.	8 —	9	—	—	1	22.5	—	—
1908 Jan.	9 —	8.5	—	—	1	24	—	—
— April	12 —	8.5	—	—	1	24.5	—	—
— Oct.	18 —	11	—	—	1	28	—	—
1909 April	24 —	13.5	—	—	1	22	—	—

Table 15. March 1908.

Marking experiments No. 1—2.

1908 March	4—11 days	0	0	0	13	23.9	22.5	28
— April	1 month	0.1	0	1	36	25	22.5	30
— May	2 months	0.2	0	1	27	24.1	22	28
— June	3 —	0.5	—	—	1	26	—	—
— July	4 —	2.5	—	—	1	23	—	—
— Sept.	6 —	3.4	2	5	4	23.2	22.5	24.5
— Nov.	8 —	5.8	5	6.5	2	24.5	23.5	25.5
— Dec.	9 —	5.3	3	7.5	2	23.5	23	24
1909 April	13 —	5.5	—	—	1	22.5	—	—
— May	14 —	7.5	—	—	1	24	—	—
— June	15 —	2.8	1	4.5	2	22.3	22	22.5
— Dec.	21 —	10	—	—	1	22	—	—

Table 16. April 1909.

Marking experiments No. 2 - 3.

1909 April	1—5 days	0.1	0	0.5	8	25.8	24	28.5
— May	1 month	0.4	0	2	46	26.3	23.5	33
— June	2 months	1.1	0	3.5	18	26.9	24	30.5
— July	3 —	1.7	0	2.5	3	27.3	27	28
— August	4 —	2	—	—	1	27	—	—
— Sept.	5 —	3.5	—	—	1	28	—	—
— Oct.	6 —	3	2	4	2	30	28	32
— Nov.	7 —	2.2	0	4	3	27.7	25.5	29.5
1910 March	11 —	4	—	—	1	24.5	—	—
— April	12 —	2.2	0.5	5	3	24.5	24	25.5
— May	13 —	7	—	—	1	27.5	—	—
— August	16 —	9	8	10	2	27.3	27	27.5
1911 March	23 —	2.5	—	—	1	23.5	—	—
— May	25 —	6.5	—	—	1	23.5	—	—
— August	28 —	20.5	—	—	1	25	—	—

Rate of Growth of plaice liberated in the Horns Reef Area A_3.

Table 17. March 1910.

Marking experiments No. 1—2.

Month recaptured	Period between liberation and recapture	Increase in cm			No. of specimens measured	Initial length in cm		
		Average	Minimum	Maximum		Average	Minimum	Maximum
1910 March	2—14 days	0.2	0	0.5	26	25.6	23	28
— April	1 month	0.3	0	1	47	25.5	22.5	28
— May	2 months	1.0	0	3	20	25.2	24	27
— June	3 —	1.4	0	3	17	25.5	23	28.5
— July	4 —	2.6	1.5	4.5	7	25.6	24	27.5
— Sept.	6 —	4.3	4	4.5	2	24.8	24	25.5
— Nov.	8 —	6.5	—	—	1	27	—	—
1911 March	12 —	4	—	—	1	25	—	—
— April	13 —	4.9	3.5	7	5	23.8	22.5	24.5
— May	14 —	6	—	—	1	25	—	—
— Dec.	21 —	12	—	—	1	28.5	—	—
1912 Febr.	23 —	15.5	—	—	1	26.5	—	—
— August	29 —	19	—	—	1	25.5	—	—

Table 18. April 1911.

Marking experiments No. 1 - 2.

1911 May	1 month	0.5	0	2	87	24.5	22	28
— June	2 months	1.3	0	2	4	24.8	24	26
— Dec.	8 —	6	—	—	1	24	—	—
1912 April	12 —	4.5	1	8	6	24	23	25
— May	13 —	2.3	1	4	3	24	23	25
— June	14 —	7	—	—	1	25	—	—
— August	16 —	6.5	5	8	2	24.5	24	25
1913 April	24 —	4	—	—	1	22	—	—

Table 19. April 1912.

Marking experiments No. 1—2.

1912 April	1—15 days	0.1	0	1	24	25	22	28
— May	1 month	0.4	0	1	15	25.3	23	27
— June	2 months	0.7	0	2	18	24.9	22	30
— July	3 —	2	0	4	9	24.7	23	26
— August	4 —	2.5	2	3	2	25	23	27
— Oct.	6 —	1.8	0	3	4	25.2	24	27
1913 April	12 —	2.6	1	3	5	24	23	25
— May	13 —	4 3	2	7	6	24.8	24	26
— June	14 —	4	1	6	4	27	25	29

Table 20. June 1911.

Marking experiments No. 3—4.

1911 June	0—8 days	0	0	0	37	24.1	22	28
— July	1 month	0	0	0	3	23.7	21	26
— August	2 months	1	1	1	4	23	23	23
— Sept.	3 —	1.5	1	2	2	26.5	23	30
1912 March	9 —	2	2	2	2	23	22	24
— April	10 —	4.6	2	9	5	23.2	22	25
— May	11 —	3.4	1	6	8	22.5	22	23
— June	12 —	6.5	6	7	2	25	25	25
1913 April	22 —	5	—	—	1	21	—	—
— August	26 —	12	—	—	1	22	—	—

Rate of Growth of plaice liberated in the Area B_4.

Table 21. September 1912.

Marking experiments No. 3—4.

Month recaptured	Period between liberation and recapture	Increase in cm			No. of specimens measured	Initial length in cm		
		Average	Minimum	Maximum		Average	Minimum	Maximum
1912 Sept.	3—14 days	0	0	0	18	24.6	22	30
— Oct.	1 month	0	0	0	7	26.4	23	33
— Dec.	3 months	0	—	—	1	24	—	—
1913 March	6 —	0	—	—	1	24	—	—
— April	7 —	0.4	0	1	5	25.4	23	27
— May	8 —	0	—	—	1	26	—	—
— June	9 —	0	—	—	1	23	—	—
— July	10 —	2	—	—	1	23	—	—
1914 April	19 —	3	2	4	2	25	24	26

Rate of Growth of plaice liberated in the Area A_3.

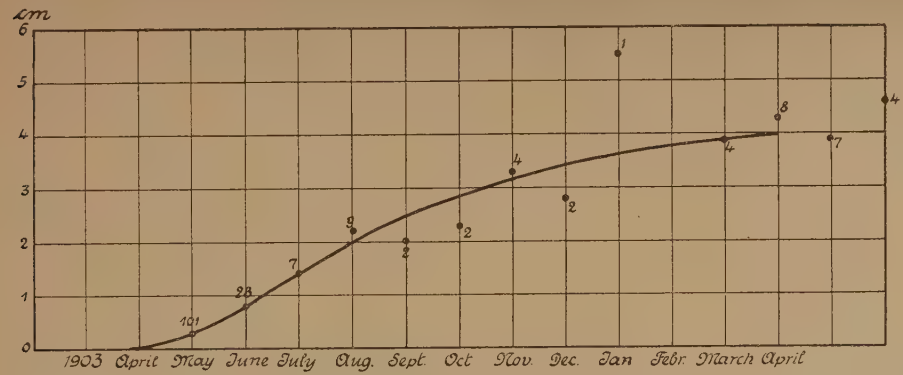
Table 22. November 1912.

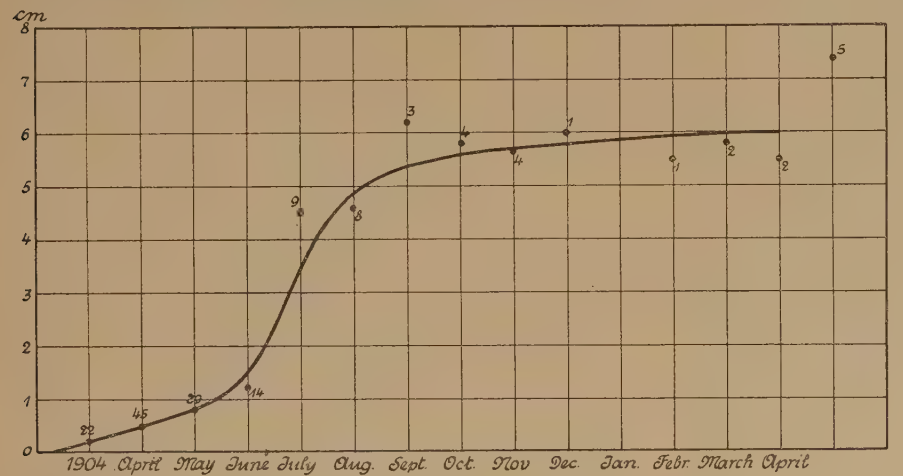
Marking experiments No. 5—6.

Month recaptured	Period between liberation and recapture	Increase in cm			No. of specimens measured	Initial length in cm		
		Average	Minimum	Maximum		Average	Minimum	Maximum
1912 Nov.	0—21 days	0	0	0	11	22.8	21	24
— Dec.	1 month	0	0	0	2	22	22	22
1913 Jan.	2 months	0	0	0	5	22.6	21	25
— March	4 —	0	—	—	1	25	—	—
— April	5 —	1.3	0	4	4	23.8	22	26
— May	6 —	0.3	0	1	4	24.3	23	26
— June	7 —	1	—	—	1	22	—	—
— July	8 —	2	—	—	1	21	—	—
— August	9 —	3	—	—	1	21	—	—
— Oct.	11 —	1	—	—	1	22	—	—

3. Marking experiments in the autumn months.

Some marking experiments made in Area A_3 and the inner portion of B_4 in September and November 1912 show that the growth during autumn and winter is extremely poor (*vide* Tables 21—22). Not until April of the following year was any increase in size to be observed. Otherwise, the experiments tend to show that the growth in 1913, as also in 1912, was extremely poor, which is further borne out by the ordinary marking experiments for the year 1913.





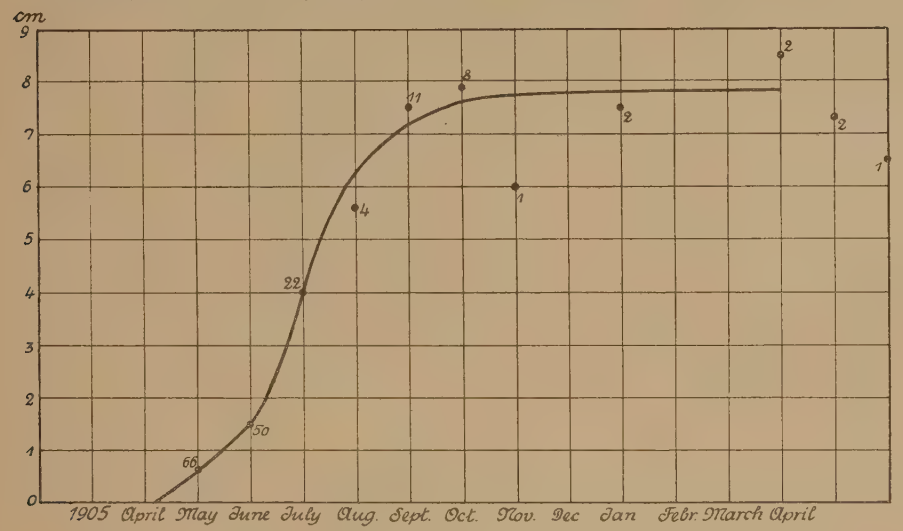
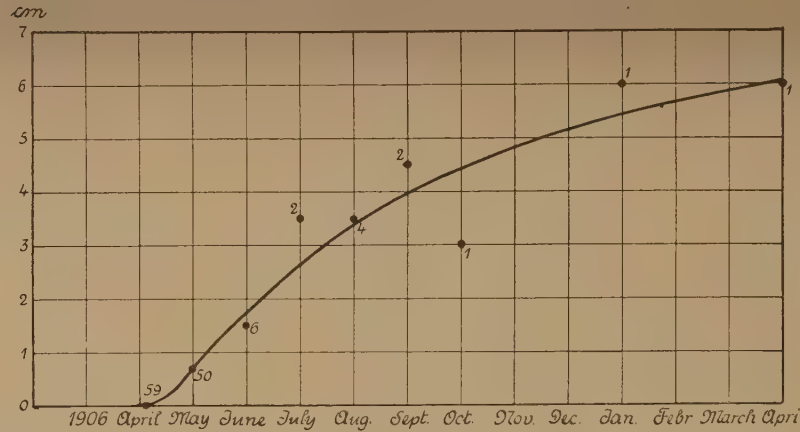
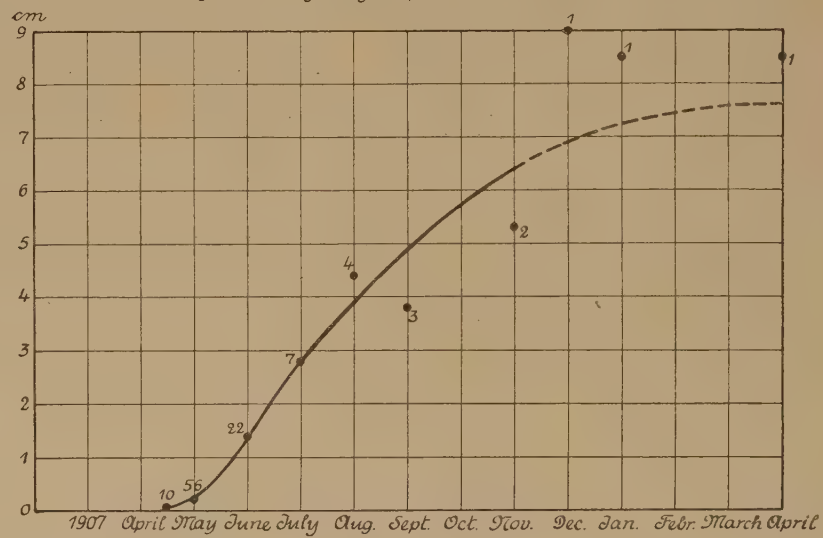


Fig. 22. Rate of growth of plaice marked near Horns Reef in (A_2 & B_4) in the spring months of 1903—1905. The figures denote No. of specimens measured.





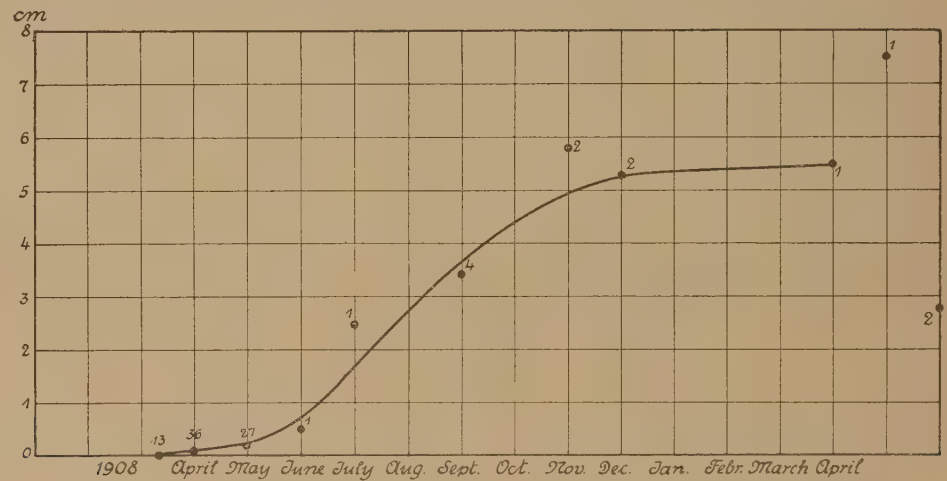


Fig. 23. Rate of growth of plaice marked near Horns Reef in Area A_2 in the spring months of 1906—1908. The figures denote No. of specimens measured.

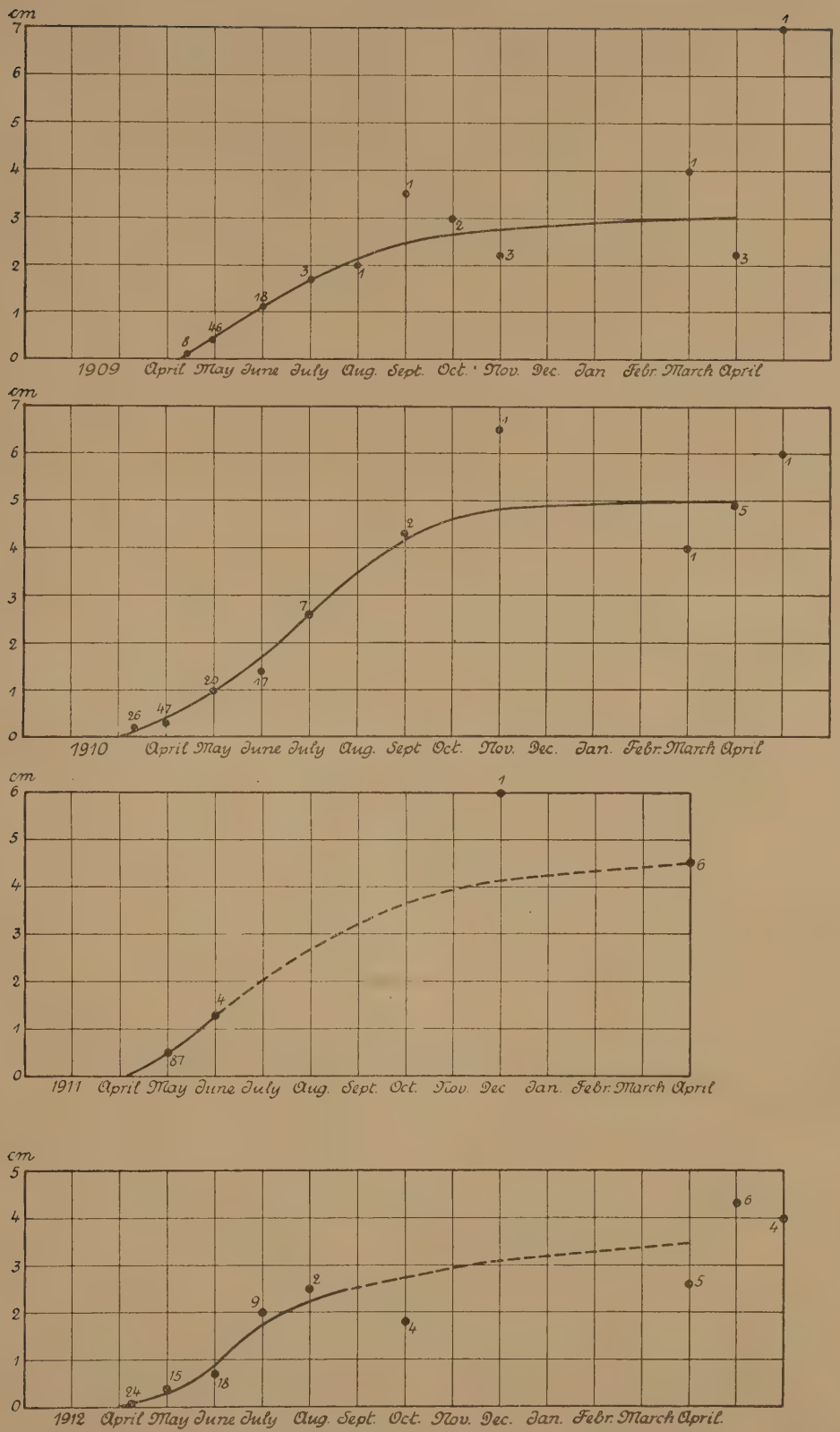

cm
1909 April May June July Aug. Sept. Oct. Nov. Dec. Jan. Febr. March April
1910 April May June July Aug. Sept. Oct. Nov. Dec. Jan. Febr. March April
1911 April May June July Aug. Sept. Oct. Nov. Dec Jan. Febr. March April
1912 April May June July Aug. Sept. Oct. Nov. Dec. Jan. Febr. March April.

Fig. 24. Rate of growth of plaice marked near Horns Reef in Area A_3 in the spring months of 1909—1912. The figures denote No. of specimens measured.

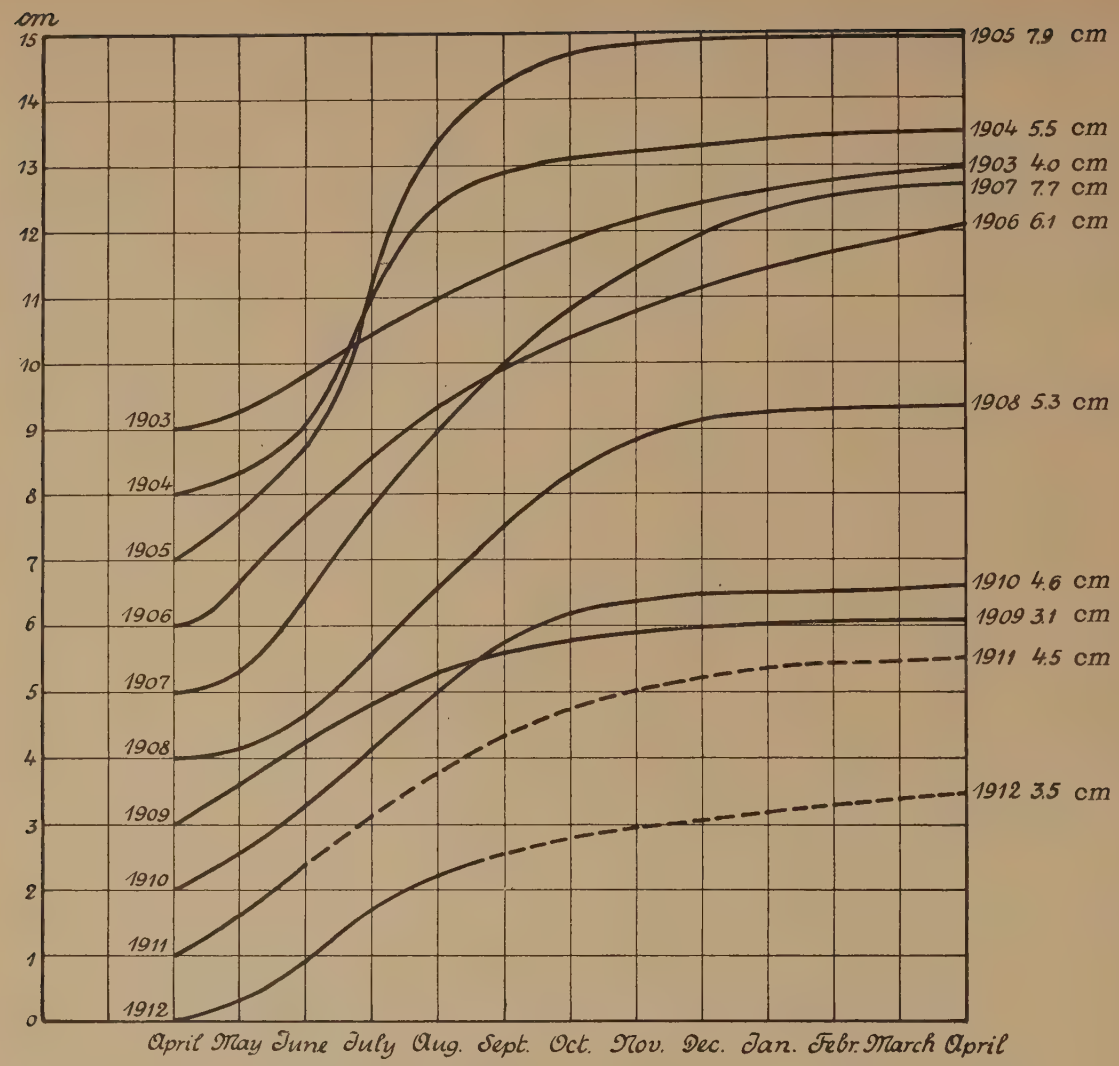


Fig. 25. Rate of growth of plaice marked near Horns Reef (Areas A_3 & B_4) in the course of one year from mid-April in the years 1903—1912.

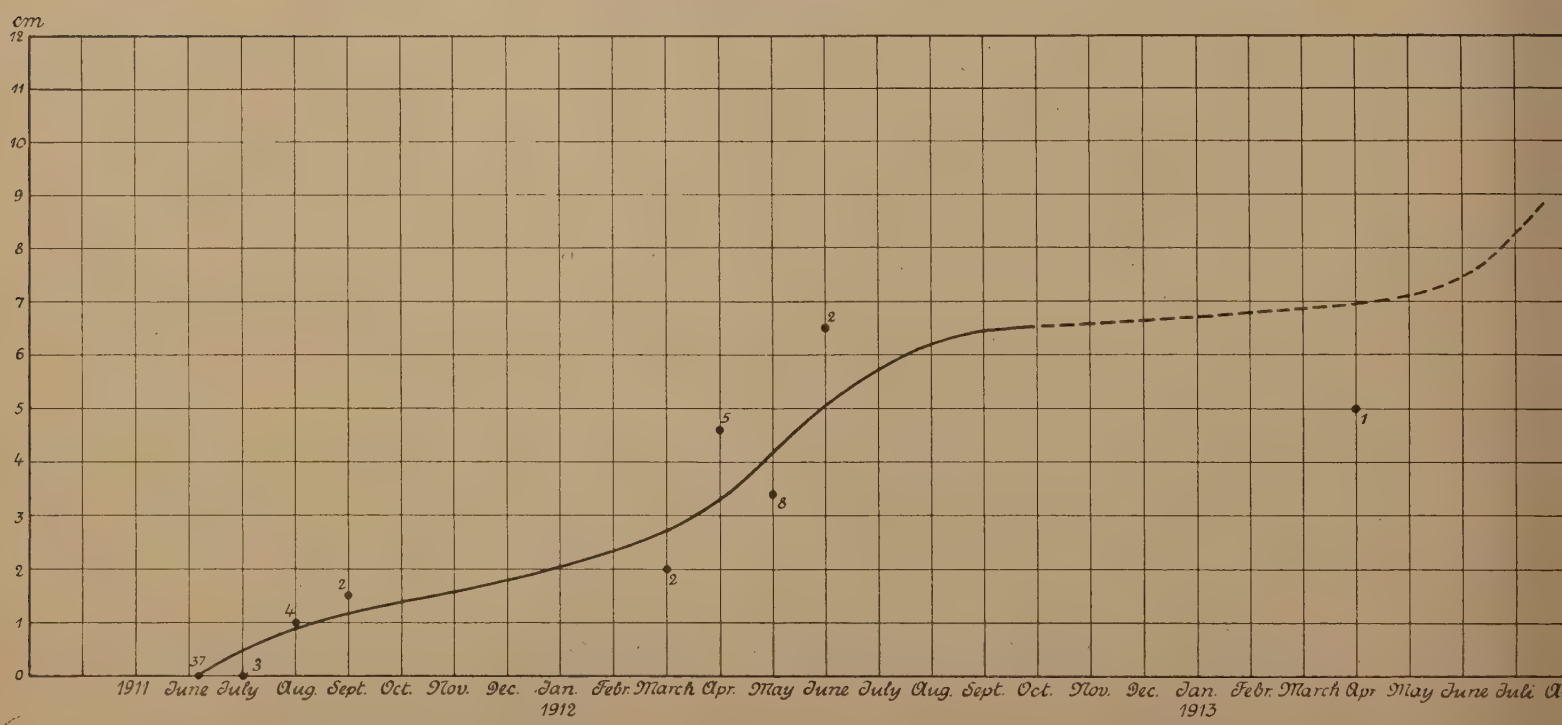

cm
1911 June July Aug. Sept. Oct. Nov. Dec. Jan. Febr. March Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Febr. March Apr May June July
1912
1913

Fig. 26. Rate of growth of plaice marked at Horns Reef in June 1911. The figures denote No. of specimens measured.

E. Comparison between weight and value of recaptured specimens and weight and value of those liberated.

The weight of all fish retaken in the various marking experiments has in all cases been considerably less than the weight of all fish marked. The difference was at its lowest in 1910, when the weight of liberated fish amounted to 33688 gr [1]) and that of the fish recaptured to 29036 gr [1]). Taking the different stages in point of size, also, the weight of liberated fish has on the whole exceeded that of the fish recaptured (the different size groups taken separately as on liberation).

The recaptured fish were naturally larger on an average than the fish liberated, and the sale price per kilo consequently a good deal higher, at least as regards all the smaller sizes from 20 to 30 cm. As a matter of course, any comparison between the value of the fish liberated and those recaptured will be a matter of difficulty, and must be made with all reserve. In view of the great practical importance of such comparison when formulated on a reasonably adequate basis, I have nevertheless ventured to make an attempt in this respect, and have therefore worked out an average value for each size stage of the fish, which is further explained elsewhere [2]). The average value thus arrived at refers to prices paid in Denmark during the years 1904 to 1907. In this connection, however, the point of chief importance is the relative values of the different sizes, and not the actual value quoted for each.

The values found for the different sizes were as follows:

Total length cm	Average weight g (k = 1)	Value in Øre (referring to prices in Denmark in 1904—1907)	Total length cm	Average weight g (k = 1)	Value in Øre (referring to prices in Denmark in 1904—1907)	Total length cm	Average weight g (k = 1)	Value in Øre (referring to prices in Denmark in 1904—1907)
20.5	86	1.0	31.5	313	15	41.5	715	50
21.5	99	1.2	32.5	343	18.5	42.5	768	54
22.5	114	1.4	33.5	376	22	43.5	823	58
23.5	130	1.6	34.5	411	26	44.5	881	62
24.5	147	2.0	35.5	447	30	45.5	942	66
25.5	166	2.6	36.5	486	34	46.5	1005	70
26.5	186	3.5	37.5	527	37	47.5	1072	75
27.5	208	5.2	38.5	571	40	48.5	1141	80
28.5	231	7.4	39.5	616	43	49.5	1213	85
29.5	257	9.6	40.5	664	46.5	50.5	1288	90
30.5	284	12						

Calculating according to this scale of values, we find that on the whole, as regards the sizes from 20—22 cm, the value of fish recaptured exceeds that of those liberated; for sizes from 23—30 cm the value of fish recaptured is about equal to that of liberated fish, while for sizes from 31—35 cm the value of the liberated fish exceeds that of those recaptured (*vide* Table 30). For the years 1906, 1908, 1909, 1911 and 1912, the value of all fish liberated exceeds that of all recaptured, the reverse being the case as regards the years 1907 and 1910 (*vide* Tables 23—29). In the last-named year, the value of fish recaptured was, at time of capture, about 34 % in excess of the value of all liberated fish at time of liberation.

[1]) Weight calculated from total length in cm according to the well-known formula: $g = \frac{l^3}{100} k$, taking $k = 1$.

[2]) A. C. Johansen: Bericht ueber die dänischen Untersuchungen ueber die Schollenfischerei und den Schollenbestand in der oestlichen Nordsee, dem Skagerak und dem nördlichen Kattegat. Medd. fra Komm. f. Havundersøgelser, Ser. Fiskeri, Bd. III, Nr. 8, 1910.

Comparison of the value and weight of recaptured plaice with the value and weight of plaice liberated, at each size. Marking experiment in the North Sea. Horns Reef. Area A_3.

Table 23. April 1906. Exper. No. 1—2.

Length in cm	Specimens liberated			Of which were recaptured									
				Total No. of specimens recaptured				Recaptured by Danish fishermen			Recaptured by foreign trawlers		
	No.	Value in Øre	Weight in gr	No.	Value in Øre	Weight in gr	Average time between liberation and recapture	No.	Value in Øre	Weight in gr	No.	Value in Øre	Weight in gr
24	20	40	2940	6	23	1072	c. 1 1/2 months	5	13	815	1	10	257
25	23	60	3818	11	38	1973	- 1 month	11	38	1973	—	—	—
26	36	126	6696	21	95	4172	- 1 —	18	77	3524	3	18	648
27	45	234	9360	32	217	7195	- 1 —	27	167	5911	5	50	1284
28	32	237	7392	26	238	6495	- 1 —	23	208	5720	3	30	775
29	27	259	6939	18	224	5132	- 1 1/2 months	16	168	4274	2	56	858
30	12	144	3408	11	168	3461	- 1 month	9	123	2701	2	45	760
31	4	60	1252	3	49	969	- 1/2 —	2	34	656	1	15	313
32	1	19	343	1	19	343	- 2 days	1	19	343	—	—	—
	200	1179	42148	129	1071	30812	c. 1 month	112	847	25917	17	224	4895

Table 24. April 1907. Experiment No. 5—6.

22	36	50	4104	11	61	2047	c. 5 months	9	16	1287	2	45	760
23	30	48	3900	15	34	2194	- 2 —	12	26	1726	3	8	468
24	43	86	6321	29	116	5093	- 2 —	27	95	4603	2	21	490
25	20	52	3320	11	47	2077	- 2 —	8	23	1370	3	24	707
26	22	77	4092	13	78	2783	- 2 —	11	48	2157	2	30	626
27	18	94	3744	13	92	2957	- 1 1/2 —	10	59	2152	3	33	805
28	13	96	3003	7	97	2110	- 4 —	5	47	1263	2	50	847
29	12	115	3084	10	126	2879	- 1 month	9	107	2536	1	19	343
30	5	60	1420	4	58	1224	- 1 1/2 months	4	58	1224	—	—	—
32	1	19	343	—	—	—	—	—	—	—	—	—	—
	200	697	33331	113	709	23364	c. 2 1/2 months	95	479	18318	18	230	5046

Table 25. March 1908. Experiment No. 1—2.

22	14	20	1596	11	44	1782	c. 7 months	9	22	1253	2	22	529
23	50	80	6500	30	71	4339	- 2 —	28	52	3824	2	19	515
24	37	74	5439	24	72	3919	- 2 —	21	50	3251	3	22	668
25	20	52	3320	10	42	1837	- 2 —	9	23	1494	1	19	343
26	13	46	2418	9	32	1674	- 2 —	8	28	1488	1	4	186
27	5	26	1040	2	10	416	- 2 —	2	10	416	—	—	—
28	8	59	1848	3	24	719	- 1 month	3	24	719	—	—	—
29	2	19	514	2	19	514	- 1 —	2	19	514	—	—	—
30	1	12	284	1	12	284	- 1 —	1	12	284	—	—	—
	150	388	22959	92	326	15484	c. 2 1/2 months	83	240	13243	9	86	2241

Table 26. April 1909. Experiment No. 2—3.

22	1	1	114	—	—	—	—	—	—	—	—	—	—
23	9	14	1170	3	18	617	c. 16 months	3	18	617	—	—	—
24	44	88	6468	17	51	2826	- 3 —	11	25	1712	6	26	1114
25	48	125	7968	17	120	2805	- 3 1/2 —	12	101	1890	5	19	915
26	33	116	6138	17	70	3295	- 1 month	12	51	2343	5	19	952
27	29	151	6032	19	212	5100	- 3 months	10	90	2460	9	122	2640
28	18	133	4158	11	118	2926	- 3 —	5	42	1208	6	76	1718
29	6	58	1542	1	10	257	- 7 —	—	—	—	1	10	257
30	6	72	1704	5	80	1600	- 1 1/2 —	3	46	940	2	34	660
31	2	30	626	1	15	313	- 1 month	1	15	313	—	—	—
32	2	37	686	1	26	411	- 6 months	—	—	—	1	26	411
33	1	22	376	1	26	411	- 1 month	1	26	411	—	—	—
35	1	30	447	—	—	—	—	—	—	—	—	—	—
	200	877	37429	93	746	20561	c. 3 months	58	414	11894	35	332	8667

Comparison of the value and weight of recaptured plaice with the value and weight of the total number of plaice liberated, at each size. Marking experiments in the North Sea. Horns Reef. Area A_3.

Table 27. March 1910. Exper. No. 1—2.

Length in cm	Specimens liberated			Of which were recaptured									
				Total No. of specimens recaptured				Recaptured by Danish fishermen			Recaptured by foreign trawlers		
	No.	Value in Øre	Weight in gr	No.	Value in Øre	Weight in gr	Average time between liberation and recapture	No.	Value in Øre	Weight in gr	No.	Value in Øre	Weight in gr
22	2	3	228	2	5	300	c. 7 months	2	5	300	—	-	—
23	13	21	1690	8	17	1152	- 3 —	6	10	797	2	7	355
24	58	116	8526	39	131	6709	- 3 —	28	88	4747	11	43	1962
25	60	156	9960	40	224	8290	- 3 —	34	115	6161	6	109	2129
26	38	133	7068	28	178	6149	- 3 —	22	97	4336	6	81	1813
27	21	109	4368	18	139	4228	- 1½ —	16	110	3621	2	29	607
28	8	59	1848	7	105	2208	- 4 —	6	58	1544	1	47	664
	200	597	33688	142	799	29036	c. 3 months	114	483	21506	28	316	7530

Table 28. April 1911. Experiment No. 1—2.

22	5	7	570	3	7	430	c. 8½ months	3	7	430	—	—	—
23	32	51	4160	14	38	2182	- 2½ —	13	36	2035	1	2	147
24	86	172	12642	48	163	8171	- 2½ —	44	128	7231	4	35	940
25	48	125	7968	25	110	4765	- 3 —	23	104	4413	2	6	352
26	14	49	2604	12	51	2343	- 1 month	12	51	2343	—	—	—
27	7	36	1456	3	20	670	- 1 —	3	20	670	—	—	—
28	6	44	1386	4	39	1029	- 1½ months	4	39	1029	—	—	—
29	1	10	257	—	—	—	—	—	—	—	—	—	—
30	1	12	284	—	—	—	—	—	—	—	—	—	—
	200	506	31327	109	428	19590	c. 2½ months	102	385	18151	7	43	1439

Table 29. April 1912. Experiment No. 1—2.

20	1	1	86	1	2	130	c. 12 months	1	2	130	—	—	—
21	1	1	99	—	—	—	—	—	—	—	—	—	—
22	10	14	1140	2	3	244	- 2 —	2	3	244	—	—	—
23	29	46	3770	11	36	1839	- 5 —	10	32	1653	1	4	186
24	54	108	7938	21	62	3508	- 3 —	20	58	3322	1	4	186
25	55	143	9130	26	130	5174	- 4 —	25	127	5008	1	3	166
26	31	109	5766	20	108	4169	- 3 —	19	98	3912	1	10	257
27	14	73	2912	7	50	1601	- 2 —	7	50	1601	—	—	—
28	3	22	693	2	26	574	- 7 —	2	26	574	—	—	—
29	1	10	257	1	30	447	- 14 —	1	30	447	—	—	—
30	1	12	284	1	19	343	- 2 —	1	19	343	—	—	—
	200	539	32075	92	466	18029	c. 3½ months	88	445	17234	4	21	795

Table 30. March—April 1906—12.

20	1	1	86	1	2	130	c. 12 months	1	2	130	—	—	—
21	1	1	99	—	—	—	—	—	—	—	—	—	—
22	68	95	7752	29	120	4803	- 6 —	25	53	3514	4	67	1289
23	163	260	21190	81	214	12323	- 3 —	72	174	10652	9	40	1671
24	342	684	50274	184	618	31298	- 2 —	156	457	25681	28	161	5617
25	274	713	45484	140	711	26921	- 3 —	122	531	22309	18	180	4612
26	187	656	34782	120	612	24585	- 2 —	102	450	20103	18	162	4482
27	139	723	28912	94	740	22167	- 1½ —	75	506	16831	19	234	5336
28	88	650	20328	60	647	16061	- 2 —	48	444	12057	12	203	4004
29	49	471	12593	32	409	9229	- 2 —	28	324	7771	4	85	1458
30	26	312	7384	22	337	6912	- 1 month	18	258	5492	4	79	1420
31	6	90	1878	4	64	1282	- ½ —	3	49	969	1	15	313
32	4	75	1372	2	45	754	- 3 months	1	19	343	1	26	411
33	1	22	376	1	26	411	- 1 month	1	26	411	—	—	—
35	1	30	447	—	—	—	—	—	—	—	—	—	—
	1350	4783	232957	770	4545	156876	c. 2½ months	652	3293	126263	118	1252	30613

IV. Unsuccessful marking experiments.

During the summer of the years 1910 and 1911, we made in shallow water on the west coast of Jutland, some few marking experiments which appear to have been unsuccessful, as only 2—10 % of the fish liberated have been recaptured, whereas as a rule, from 40—60 % are retaken. This poor percentage of recaptures is probably due to the ill effects occasioned by taking the fish from the water and marking them at a relatively high temperature. As most of the experiments, moreover, included transplantation, it is possible that the fish may have suffered somewhat in transit, though this was effected in calm weather in a motor cutter. In transplantation experiments, the percentage of recaptures is nearly always considerably below that customary in the case of ordinary marking experiments. A detailed survey of the experiments in question will be found in the appendix herewith, p. 55 and p. 59.

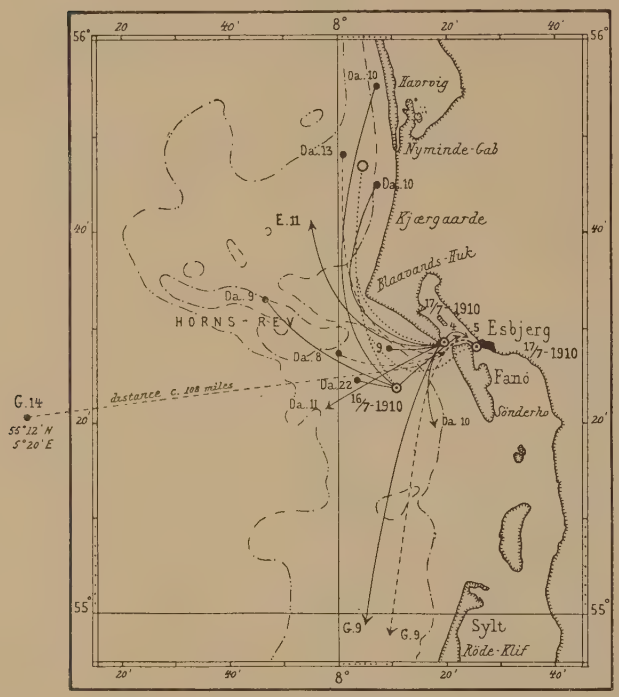


Fig. 27. Transplantation experiments with plaice in July 1910. The fish were captured off Nymindegab and transplanted to Graadeep. Females denoted by a spot, males by an arrow head. (See p. 4. D.)

Ordinary marking experiments.

On the 20th of June 1911, 100 plaice were liberated off Thyborøn, at the place of capture, in 16 metres depth. Only 7 of these are known to have been retaken. Two of them had covered some considerable distance, one being taken off Ringebjerg four months later, and the other in the Kattegat, off Sæby, after 10 months had elapsed.

Transplantation experiments.

Transplantation experiment No. 2, 1910 (Fig. 27).

160 plaice were taken off Nymindegab at 17 m depth, and liberated close to Graadeep Light-ship at 14 metres depth, on the 16th of July 1910.

One of these fish was retaken in November 1910 in Hjerting Fjord, off Jerg. It would thus appear to have taken part in the ordinary autumn migration in towards the coast. Two other specimens were retaken close to Horns Reef, in April 1911 and May 1912 respectively.

Transplantation experiment No. 3, 1910 (Fig. 27).

60 plaice were taken off Nymindegab at 17 metres depth and liberated close outside Esbjerg Harbour, in 0—0.5 metres depth, on the 17th of July 1910.

Four of these fish were recaptured in A_3 in the North Sea during the period from March—August 1911, and one in Area C_2 between Horns Reef and the Dogger Bank in September of the same year.

Transplantation experiment No. 4, 1910 (Fig. 27).

80 plaice were taken off Nymindegab at 17 metres depth and liberated off the northern coast of Fanø, in 0.5 metres depth, on the 17th of July 1910.

In December 1910, a single specimen was retaken in Hjerting Fjord, and in April, May and June 1911 seven specimens were recaptured in Area A_3, between Haurvig and Red Cliff.

APPENDICES.

Appendix I. Grounds fished by the Danish Cutters from Esbjerg in 1906—1909.

Date	Locality	No. of Cutters	Remarks
1906			
Febr. 10—17	SW of Vyl	1	No yield
March 17—24	At Vyl Light-ship	The whole fleet	small yield
April 1—7	Off Red Cliff	25—30	
— —	Place of fishing not stated	c. 10	
— —	SW of Cancer	5—6	
— 8—14	Off Red Cliff, Cancer and SW of Vyl L-S	25—30	
— —	12—25 miles SW of Graadeep	20—30	
— —	N of Horns Reef	a few	
— 15—21	Slugen	c. 10	
— —	c. 20 miles SW of Graadeep	some	
— —	Red Cliff, Slugen and N of Slugen	c. 50	
— 22—28	W of Red Cliff	15—20	
— —	At Red Cliff and at Slugen	10—15	
— —	Slugen	15—20	
— 29—	10 miles SW of Graadeep—Red Cliff	Almost the whole fleet	
May 5	N of Slugen	c. 10	
— 6—12	N of Slugen, off Kærgaarde and Nymindegab	50—60	
— —	SE of Vyl Light-ship	20—30	
— —	Off Red Cliff	20—25	
— —	Off Husby	5—6	
— 13—19	Slugen—Kærgaarde and Nymindegab, near the shore	c. 70	
— —	SW of Graadeep—The Cancer ground and off Sønderho	50—60	
— —	NE of Slugen, 8 fms.	20—30	
— —	— nearer to the shore	some	
— 20—26	Off Amrum	20—25	
— —	NW of Red Cliff	50—60	
— —	Off Kærgaarde and Nymindegab	25—30	
— —	SW of Graadeep and at Cancer ground	c. 30	
— 27—	Off Kærgaarde and Nymindegab	50—60	
June 2	Off Amrum	c. 20	
— —	E of Vyl Light-ship, NW of Red Cliff	c. 50	
— —	NW of Red Cliff	c. 40	
— 3—9	Off Red Cliff	15—20	
— —	Off Nymindegab	15—20	
— —	Off Red Cliff	6—8	
— 10—16	—	50—60	small yield
— —	Off Nymindegab	c. 50	
— —	—	Almost the whole fleet	small yield
— —	SW of Graadeep far at sea	3	
— 17—23	N to W of Heligoland, off Amrum and Red Cliff	Most of the cutters	
— —	Off Nymindegab	c. 10	
— —	NW of Heligoland	a few	
— 24—30	Off Red Cliff, and N and W of Heligoland	The whole fleet	small yield, stormy weather
July 1—7	S of Vyl Light-ship	1	
— —	S of Vyl Light-ship, NW of Heligoland	50—60	
— —	Off Ringkjøbing	6—8	
— —	Off Kærgaarde	some	small yield
— —	NW of Horns Reef Light-ship	c. 40	No yield
— 8—14	S of Vyl Light-ship, and off Ringkjøbing	25—30	
— —	c. 20 miles SW of Horns Reef Light-ship	2	
— —	NW of Slugen	several	
— —	Off Lyngvig and Aargab	30—40	
— —	Vyl Light-ship	30—40	
— —	60 miles SW of Graadeep	7—8	

Date	Locality	No. of Cutters	Remarks
1906			
July 27—	SW, W and NW of Horns Reef L-S	Most of the cutters	
Aug. 4	NW of Slugen	some	
— —	c. 60 miles SW of Graadeep	1	
— 5—11	Horns Reef Light-ship	10—15	Stormy weather in the first days of the week
— —	Slugen	2—3	
— —	50 miles SW of Graadeep	2—3	small yield
— 12—18	NW of Horns Reef Light-ship	20—30	
— —	W of Vyl Light-ship	some	
— —	c. 20 miles WNW of Horns Reef L-S	30—40	
— —	c. 40 — W of Vyl Light-ship	c. 10	
— 19—25	W to S of Bovbjerg	3—4	Stormy weather almost the whole week
— 26—	SW of Bovbjerg	6—7	small yield, stormy weather
Sept. 1			
— 2—8	N and E of Horns Reef Light-ship and along the shore to Bovbjerg	Most of the cutters	
— 9—15	N of Slugen to Nørre Lyngvig	do.	
— —	70—80 miles SW of Graadeep	c. 10	
— —	At Horns Reef Light-ship	c. 10	
— 16—22	Off Nymindegab, near the shore	60—70	Strong breeze, 6—8 cutters go to the Kattegat
— 23—29	Off Slugen	10—15	
— —	At Horns Reef Light-ship	10—12	
— —	Off Nymindegab, near shore	Most of the cutters	very small yield
— —	c. 50 miles SW of Graadeep	1	
— 30—	Horns Reef Light-ship	c. 35	stormy weather
Oct. 6	Off Kærgaarde and Nymindegab	Most of the cutters	
— 7—13	NW of Horns Reef Light-ship	10—15	
— —	Off Nymindegab	15—20	
— —	c. 35 miles SW of Graadeep	1	
— —	Off Kærgaarde and Nymindegab	c. 20	Some cutters went to the Kattegat
— 13—20	Place of fishing not stated	a few	no yield, stormy weather
— 21—27	N of Slugen	c. 10	do.
— —	N and W of Horns Reef Light-ship	14—15	
—28—Nov. 3	W and N of Horns Reef Light-ship and N of Slugen	c. 20	
— 4—10	30—40 miles SW of Graadeep	1	
— —	SW, W and NW of Horns Reef L-S	30—35	stormy weather
— 11—17	NW of Horns Reef Light-ship	1	
— —	S of Horns Reef Light-ship	5—6	
— 18—24			
— 25—			
Dec. 1	Place of fishing not stated	1	
— —	The waters betw. Esbjerg and Fanø	c. 125 boats	stormy weather
— 2—8	do.		
— 9—15	do.		
— 16—22			
1907			
March 3—9	Place of fishing not stated	40—50	
— 10—16	6—8 miles SW of Graadeep	a few	stormy weather
— 24—30	c. 10 miles W of Graadeep	40—50	
— 31—	At Graadeep Light-ship	Most of the cutters	
April 6	Off Red Cliff	4—5	
— —	50—60 miles SW of Graadeep	1	
— 7—13	W of Graadeep Light-ship	c. 50	

Date	Locality	No. of Cutters	Remarks
1907			
April 7—13	Slugen	c. 35	
— —	Off Red Cliff	some	
— 14—20	NNW of Slugen	Half the fleet	stormy weather
— —	S of Cancer grounds	—	stormy weather
— 21—27	Tuxen	c. 12	
— —	S of Cancer grounds	c. 13	
— 28—	SW of Cancer	14—15	small yield
May 4	At Tuxen	12—14	
— —	Slugen, Tuxen, Cancer, Nymindegab and Kærgaarde	c. 100	
— 5—11	SW of Graadeep—NW of Red Cliff	50—60	
— —	Slugen	c. 30	
— —	N of Vyl Light-ship	10—15	
— —	Off Kærgaarde	some	
— 12—18	c. 10 miles SW of Graadeep	20—30	
— —	c. 18 — —	c. 20	
— —	S of and at Tuxen	20—30	
— —	Off Grærup, Slugen	some	
— —	5 miles NW of Slugen	—	
— 19—25	Slugen	40—50	
— —	NE of Slugen	c. 20	
— —	N of Vyl	c. 30	
— —	N of Red Cliff	a few	
— —	NW of Graadeep	6—8	
— 26—	S and N of Horns Reef	25—30	
June 1	10 miles SW of Graadeep	c. 10	
— —	Off Kærgaarde near the coast	some	
— —	NW of Slugen	25—30	
— —	SW of Graadeep, betw. Graadeep and Vyl Light-ship and off List	c. 20	
— 2—8	Slugen, NW of Graadeep Light-ship	c. 50	
— —	NW of Red Cliff	a few	
— —	SW of Graadeep	c. 10	great yield
— —	Slugen	20—30	do.
— —	N of Vyl Light-ship	several	do.
— —	N of »Knoppen«	30—35	do.
— 9—15	N of »Knoppen«, Kærgaarde	c. 40	do.
— —	SE of Vyl Light-ship		
— —	N of Slugen, off Kærgaarde near the coast, off Nymindegab	Most of the cutters	do.
— —	S and SE of Red Cliff Light and W of Red Cliff	30—40	
— —	At Tuxen	c. 10	
— 16—22	N of Slugen	30—35	
— —	N of Vyl Light-ship	20—30	
— —	S of Vyl	c. 10	
— —	Slugen and N to W of that	30—40	small yield
— 23—29	N of Knoppen	c. 10	
— —	N of Slugen	a few	stormy weather
— —	—	10—15	stormy weather
— 30—	—	c. 50	
July 4	—	50—60	
— —	—	15—20	
— —	10 miles NW of Slugen	15—16	
— —	N of Vyl Light-ship	c. 20	
— —	N of Vyl	c. 10	
— —	60 miles WSW of Graadeep	1	
— 5—11	N of Slugen	Almost the whole fleet	
— —	NW of Slugen	15—20	
— —	Off Haurvig	a few	
— —	NW of Horns Reef Light-ship	1	
July 12—19	Off Holmsland Klit, 14-20 miles off shore	Almost the whole fleet	stormy weather
— —	NE and S of Horns Reef Light-ship	a few	
— 20—26	N of Horns Reef Light-ship, NW and N of Slugen	The whole fleet	
— —	c. 30 miles NE to N of Slugen	c. 50	
— 27 Aug. 1	NW to N of Slugen and W to N of Horns Reef Light-ship	10—20	stormy weather
Aug. 2—9	20—25 miles NW of Slugen	The whole fleet	
— 10—16	20—25 — —	c. 35	stormy weather
— 17—23	Place of fishing not stated	1	stormy weather, no yield
— —	do.	1	stormy weather, no yield
— —	do.	1	stormy weather, no yield
— 24—30	20 miles NNW of Slugen	c. 20	
— —	do.	c. 50	
— —	do.	20—25	
— 31—	Place of fishing not stated	6—8	stormy weather
Sept. 6	20 miles NNW of Slugen	c. 30	do.
— —	Place of fishing not stated	a few	do.
— 7—13	20 miles NW of Slugen	c. 20	
— —	do.	c. 20	
— 14—20	Place of fishing not stated	c. 40	stormy weather
— 21—27	20—25 miles NNW of Slugen	Most of the cutters	great yield
— —	15 miles NW of Slugen	some	no yield
— —	Off Nymindegab near shore	a few	
— 28—	N and NW of Slugen	Most of the cutters	
Oct. 4	Horns Reef Light-ship	some	no yield
— —	Off Lyngvig L	c. 20	
— 5—11	WNW of Horns Reef Light-ship	6—7	small yield
— —	7—8 miles N of Slugen	some	do.
— —	10—18 — NNW of Slugen	c. 60	
— 12—18	10 miles NNW of Slugen	1	
— —	do.	a few	small yield
— 19—25	do.	20—30	
— —	do.	15—16	
— —	do.	several	small yield
— —	Horns Reef Light-ship	some	very small yield
— —	N of Vyl Light-ship, NNW of Slugen	c. 20	
— 26—	do.	Most of the cutters	small yield
Nov. 1	do.	1	
— 2—8	Off Aargab near shore,	1	in the first days of the week stormy weather
— —	Place of fishing not stated	30—40	the cutter fishing is at this time almost stagnant; giving no yield, it is considered as finished this year
— —	c. 60 miles NW of Slugen	a few	the cutter fishing is at this time almost stagnant; giving no yield, it is considered as finished this year
— 9—15	Place of fishing not stated	a few	the cutter fishing is at this time almost stagnant; giving no yield, it is considered as finished this year
— 16—22	Esperance Bay	some	the cutter fishing is at this time almost stagnant; giving no yield, it is considered as finished this year
1908			
March 6		a few	
— —20	Graadeep Light-ship, betw. Graadeep and Vyl Light-ship	25—30	small plaice
— —	Place of fishing not stated	10—15	small yield
— —	do.	1	
— 21—27	W of Graadeep Light-ship	40—50	
— —	Off List	c. 10	
— 28 April 3	W of List—at Horns Reef L-S, betw. Graadeep L-S and Vyl L-S and 20—30 miles SW of Graadeep	60—70	
April 4—10	Slugen	some	
— —	Red Cliff, Vyl Light-ship, Slugen	c. 20	small yield

Date	Locality	No. of Cutters	Remarks
1908			
April 4—10	Graadeep Light-ship	c. 20	
— —	Off Red Cliff	1	
— —	NW of Graadeep Light-ship	c. 10	
— 11—18	At Cancer, W of List, Slugen, SW of Graadeep	50—60	
— —	SW of Graadeep	50	
— —	do.	10	stormy weather, no yield
— —	SW of Graadeep Light-ship	a few	
— —	W of List — N of Horns Reef	50—60	
— 19—24	NW of Red Cliff Light	5—6	
— —		c. 30	stormy weather
— 25—	NW of Red Cliff	c. 10	
May 2	Various fishing-grounds	40—60	small yield
— —	Slugen, off List, 16 miles SW of Graadeep	30—40	
— —	Place of fishing not stated	c. 35	
— —	SW of Graadeep	a few	
— 3—8	Slugen, off Red Cliff, N of Horns Reef	c. 40	
— —	Place of fishing not stated	c. 20	
— —	Off Amrum, off List, at Graadeep Light-ship, Slugen, off Kærgaarde	60—70	
— —	NE of Horns Reef Light-ship	a few	
— —	Various fishing-grounds	25—30	
— 9—16	Place of fishing not stated	10—15	
— —	Off Ringebjærg, Slugen	c. 25	
— —	Off List	15—20	
— —	Slugen	a few	
— —	Off Ringebjærg	c. 30	
— 17—22	Off List and Amrum, at Graadeep Light-ship, N of Horns Reef	c. 30	
— —	Place of fishing not stated	c. 20	
— —	Various fishing-grounds	25—30	
— —	c. 65 miles WSW of Graadeep	1	
— —	Off Red Cliff, Kærgaarde and Nymindegab	35—40	
— 23—29	N of Horns Reef, Kærgaarde—Aargab, off List and Amrum	c. 40	
— —	Betw. Graadeep L-S and Vyl L-S	a few	
— —	Place of fishing not stated	40—50	
— —	List—Nymindegab	c. 20	small yield
— 30 June 6	Off List and Amrum, and W of Red Cliff	Almost the whole fleet	
June 6	S of Vyl Light-ship	3	
— 7—13	SW of Graadeep—Heligoland	25—30	stormy weather the first and the last days of the week
— —	SW of Graadeep—Amrum Light-ship	80—100	
— —	NNE of Helgoland	10—12	
— —	c. 50 miles SW of Graadeep	1	
— —	N of Horns Reef—Aargab	a few	no yield
— 14—19	Place of fishing not stated	a few	small yield
— —	NNE of Heligoland	c. 60	
— —	S of Vyl Light-ship	c. 20	
— 20—26	NNE of Heligoland, S of Vyl Light-ship	c. 30	
— —	Off Amrum and Red Cliff	c. 20	
— —	do.	14—15	
— —	The grounds betw. Vyl Light-ship and Heligoland	30—40	strong gale
— 27—	35—40 miles SW of Graadeep	c. 45	
July 3	At Heligoland	c. 10	
— —	W of Amrum	some	
— —	S of Vyl Light-ship	c. 20	
— —	Vyl—Heligoland	c. 30	stormy weather, small yield
— 4—10	At Vyl Light-ship and S of that	c. 25	
— —	N of Vyl Light-ship	10—12	

Date	Locality	No. of Cutters	Remarks
1908			
July 4—10	c. 10 miles NW of Slugen	2	
— —	Off Lyngvig	8—10	
— —	c. 25 miles W to S of Graadeep	c. 10	
— —	N of Horns Reef and at Vyl	c. 20	
— 11—17	Horns Reef Light-ship	2	very bad weather
— —	18 miles NW of Slugen	1	
— —	Place of fishing not stated	c. 8	
— —	Various grounds	several	
— —	Place of fishing not stated	1	
— —	do.	1	
— 18—24	N of Vyl	6—8	
— —	At Horns Reef Light-ship	3—4	
— —	Off Lyngvig	1	
— —	Place of fishing not stated	c. 20	
— —	S and N of Horns Reef	c. 12	
— —	Place of fishing not stated	1	
— —	Off »Klitten«	c. 20	
— 25—31	SW of Graadeep	c. 20	
— —	do.	c. 15	
— —	do.	2	stormy weather the last days of the week
— —	do.	c. 30	
— —	Place of fishing not stated	a few	
— —	Off Bovbjerg	2	
Aug. 1—8	N of Horns Reef and SW of Graadeep	The whole fleet	
— —	Place of fishing not stated	3—4	
— —	do.	1	stormy weather
— 9—14	Off Lyngvig	c. 10	
— —	60 miles WSW of Graadeep	a few	
— 15—21	Off Lyngvig	c. 10	
— —	c. 60 miles WSW of Graadeep	a few	
— —	do.	1	
— —	do.	c. 65	
— —	do.	a few	
— —	do.	c. 35	
— —	WNW of Horns Reef Light-ship	c. 10	
— —	Off Husby	5—6	
— 22—28	Various grounds	c. 10	
— —	NNW of Horns Reef Light-ship	4 5	stormy weather
— 29 Sept. 5			
Sept. 6—12			
— 13—19	Slugen and various other fishing grounds	several	very small yield
— —	At Horns Reef L-S and SW of Graadeep	12—14	
— 20—25	Off Lyngvig	16—20	
— —	At Horns Reef Light-ship	16—20	very small yield
— —	Place of fishing not stated	some	
— —	Off Nörre Lyngvig and N of there	c. 20	
— —	Off Lyngvig — N of Husby	c. 15	
— —	Off Nörre Lyngvig and N of there	c. 30	
— —	Jutland Reef, WNW of Husby	1	
— 26—	Off Lyngvig, Vyl Light-ship	c. 30	
Oct. 3		Most of the cutters	small yield
— —	Most of the fishing-grounds from Lyngvig to c. 60 miles SW of Graadeep	c. 30	
— —		c. 15	
— —		some	
— —		5—6	
— 4—10	N and NW of Slugen	Most of the fleet	
— —	Off Lyngvig	some	
— —	NW of Horns Reef Light-ship	some	
— —	Betw. Graadeep L-S and Vyl L-S	a few	

Date	Locality	No. of Cutters	Remarks
1908			
Oct. 4—10	Off Husby	1	
— 11—16	do.	a few	
— —	do. , at Slugen, at Vyl Light-ship	12—15	
— —	Off Aargab	c. 20	
— —	N of Vyl Light-ship	c. 10	
— —	Slugen, c. 46 miles WSW of Graadeep	some	small yield
— 17—24	Off Husby	2	
— —	Off Lyngvig and Vedersø	20—25	
— 25—31	Off Husby	5—6	
— —	Slugen	1	
— —	Place of fishing not stated	6—7	very small yield
— —	At Graadeep Light-ship	c. 25	
— —	Off Lyngvig and Husby	4	
— —	Slugen	some	small yield
— —	Horns Reef Light-ship	1	this cutter had been at sea for 14 days
Nov. 1—7	Place of fishing not stated	6—7	
— —	Slugen	c. 14	
— —	do.	2	
— —	N of Vyl Light-ship	1	
— 8—14	N of Slugen	some	no yield
— —	Slugen	c. 15	
— —	c. 60 miles SW of Graadeep	1	big plaice
— —	Place of fishing not stated	c. 10	
— —	NW of Slugen	7—8	
— 15—21			stormy weather
— 22—28			
— 29—	Graadeep Light-ship	some	
Dec. 5	Esperance Bay	c. 20	stormy weather
— 6 12			no yield
— 13—19			
1909			
Febr. 20—27	Place of fishing not stated	3	small yield
— 28-March 6	do.	4	
March 7—19	W of Graadeep Light-ship	10	
— 20—27	do. , Slugen	30—40	
— 28-Apr. 3	do. Light-ship	10	
— —	Slugen	a few	small yield
— —	W of Red Cliff	a few	
Apr. 4—10	Round Graadeep L-S and off Red Cliff	c. 20	
— —	S of Vyl Light-ship	4—5	
— 11—17	Round Graadeep L-S and Vyl L-S	20—25	
— —	Slugen	1	
— 18—24	Slugen and N of Slugen	25—30	
— —	20 miles SW of Graadeep	c. 15	
— —	NW of Horns Reef Light-ship	1	
— 25-May 1	Northern part of Slugen	c. 20	
— —	20—30 miles SW of Graadeep	c. 20	
— —	From Slugen to Nymindegab	c. 25	
May 2—8	Off Blaabjerg	c. 15	
— —	At Heligoland	1	
— —	N of Slugen	14—16	
— 9—15	Between Vyl and Graadeep Light-ship	15—20	
— —	Slugen	5—6	

Date	Locality	No. of Cutters	Remarks
1909			
May 9—15	At Heligoland	2	
— —	Off Bovbjerg	1	
— 16—22	At Heligoland	a few	
— —	At Heligoland, round Vyl Light-ship and N of Slugen	c. 20	
— 23—29	Slugen	15—20	
— —	SW and W of Graadeep Light-ship	c. 15	
— —	Off Amrum	1	
— —	16—17 miles SW of Graadeep	30	
— —	At Heligoland	a few	
— 30-June 5	15—20 miles SW of Graadeep	c. 50	
— —	Off Kærgaarde	c. 20	
— —	At Heligoland	a few	
— —	W of Amrum	3—4	
— —	Off Kærgaarde	5—6	
June 6—11	40—50 miles SW of Graadeep	c. 30	
— —	Off Amrum	10—15	
— 12—19	Round Vyl Light-ship and to the S	c. 40	
— —	Round Vyl, off Amrum and List and at Heligoland	c. 30	
— —	Slugen	a few	
— 20—26	c. 35 miles SW of Graadeep and off Amrum	c. 25	
— —	Off Bjerregaard	c. 15	
— —	SW of Graadeep and N of Slugen	c. 20	
— 27-July 3	Off Bjerregaard and c. 40 miles SW of Graadeep	c. 25	
— —	Off Lyngvig	a few	
— —	do.	c. 30	
July 4—10	SW of Lyngvig Light	50—60	
— —	c. 40—50 miles SW of Graadeep	a few	
— 11—17	Off Lyngvig	c. 50	
— —	c. 40—50 miles SW of Graadeep	a few	
— 18—24	Off Lyngvig	50—60	
— —	Off Husby	5—6	
— 25—31	Off Lyngvig	c. 50	
Aug. 1—7	Round Horns Reef Light-ship	a few	
— 8—14	Far to the North, nearly off Bovbjerg	c. 20	
— 15—21	c. 40 miles NW of Horns Reef L-S	50	
— 22—28	Place of fishing not stated	c. 10	small yield
— 29-Sept. 4	W and NW of Graadeep Light-ship	5—6	
— —	c. 60 miles SW of Graadeep	some	small yield
Sept. 5—18	Off Lyngvig	5—6	
— —	Off Husby	a few	
— 19—24	Place of fishing not stated	c. 20	
— 25-Oct. 2	Off Aargab and Bovbjerg	c. 15	
Oct. 3—9	Along the shore to Bovbjerg	c. 30	
— 10—16	Place of fishing not stated	3	stormy weather
— 17—23	N of Slugen	c. 15	
— 24—30	Place of fishing not stated	c. 30—40	small yield
— 31-Nov. 4	Esperance Bay	c. 40	
— —	Vejersbanke	3	
Nov. 5—13	Esperance Bay	c. 40	
— —	Round Vyl Light-ship	15—16	
— 14—20	Place of fishing not stated	c. 20	
— 21—27	Esperance Bay	some	small yield

Appendix II. Particulars regarding the ordinary Danish marking experiments with plaice in the North Sea in 1906—1912.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture										
	Date	No. on Label	Locality reported	Central Position (Approximately)	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately	Remarks
				N E				cm	cm	cm	
Experiment	1906 April 7	2644	2 miles N of Cancer 13 m	55°31′ 8°00′	Danish	0	♂	25	25	0	
No. 1 1906	— — 8	2647	2 — — —	55 31 8 00	—	0	♀	29	29	0	
April 7	— — 9	2622	2 — SW of Cancer —	55 28 8 00	—	0	♂	25	24.5	0	
9 miles SW by W	— — —	2666	2 — — —	55 28 8 00	—	0	♂	25	25	0	
of Blaavand Light	— — 10	2608	7 — WNW of Graadeep 14 m	55 27 8 03	—	0	♀	28	28	0	
55° 25′ N 8° 00′ E	— — —	2610	2 — SSW of Cancer 13 m	55 27 8 02	—	0	♂	27	27	0	
16 m.	— — —	2612	3 — S of Cancer —	55 27 8 03	—	0	♂	24	24	0	
»Thor« St. 799	— — —	2621	4 — WNW of Graadeep —	55 26 8 08	—	0	♂	27	27	0	
150 Plaice liberated	— — —	2631	1 mile S of Cancer —	55 28 8 03	—	0	♀	27	27.5	0	
(No. 2601—2750)	— — —	2649	4 miles WNW of Graadeep —	55 26 8 08	—	0	♀	27	28	0	
	— — —	2717	6 — SSW of Blaavand Point —	55 28 8 03	—	0	♀	29	28.5	0	
	— — 11	2628	2 — SSW of Cancer —	55 27 8 02	—	0	♂	27	27.5	0	
	— — —	2668	2 — — —	55 27 8 02	—	0	♂	24	24.5	0	
	— — —	2701	2 — — —	55 27 8 02	—	0	♂	28	28	0	
	— — —	2748	3 — SE of Vyl Light-ship 17 m	55 22 7 50	—	0	♀	27	26.5	0	
	— — 12	2624	1 mile SW of Cancer 13 m	55 29 8 01	—	0	♀	27	26	0	
	— — —	2638	1 — S by W of Cancer —	55 29 8 01	—	0	♂	26	25.5	0	
	— — —	2679	2 miles SW of Cancer —	55 28 8 00	—	0	♂	26	25.5	0	
	— — —	2698	3 — — 17 m	55 27 7 59	—	0	♂	29	29	0	
	— — 13	2602	12 — W of Listerdeep 19 m	55 01 7 58	—	0	♀	27	27	0	
	— — —	2627	3 — SE of Vyl Light-ship 17 m	55 22 7 50	—	0	♀	28	28	0	
	— — 14	2696	»NW Graadeep« 13 m	55 28 8 08	German	0	♀	27	26	0	
	— — —	2710	— —	55 28 8 08	—	0	♂	31	30	0	
	— — 18	2613	2 miles NW of Slugen N 14 m	55 35 7 45	Danish	0	♀	27	27.5	0	
	— — —	2731	2 — WNW of Slugen N 13 m	55 34 7 44	—	0	♂	30	30	0	
	— — —	2744	2 — — —	55 34 7 44	—	0	♀	30	29.5	0	
	— — 26	2630	1 mile SW of Slugen N 19 m	55 33 7 47	—	0	♀	28	27.5	0	
	— — 27	2695	Off the Light-buoy, Slugen N 15 m	55 34 7 47	—	0	♀	29	29.5	0	
	— — 30	2652	15 miles W of Red Cliff 17 m	54 54 7 55	—	0	♂	26	26.5	0	
	— May 1	2709	55°15′ N 8°20′ E [10 m] [1])	55 15 8 20	English	I	♂	26	26.5	0	
	— — 2	2689	55 38 N 7 37 E 13 m	55 38 7 37	—	I	♀	28	c. 27	0	salted, head off
	— — 5	2743	3 miles SW of the bell-buoy, Graadeep —	55 23 8 11	Danish	I	♀	28	28	0	
	— — 8	2623	1 mile NNW of Kærgaarde Bn. 9 m	55 42 8 08	—	I	♂	26	26	1	rotten
	— — —	2642	7 miles W by N of Graadeep 16 m	55 26 8 03	—	I	♂	28	28.5	1	—
	— — —	2654	15 — WSW of Red Cliff 18 m	54 48 8 00	—	I	♂	24	24	1	somewhat dry
	— — —	2711	8 — W by N of Graadeep 15 m	55 26 8 01	—	I	♀	25	25	1	rotten
	— — —	2727	Off Blaabjerg		—	I	♂	26	27	1	fresh
	— — 9	2615	6 miles W of Ringebjerg Bn. 13 m	55 36 7 56	—	I	♀	25	25	0	tail a little dry
	— — —	2650	3 — SW of Cancer 15 m	55 27 7 59	—	I	♀	28	29.5	1	fresh
	— — —	2653	4 — — 16 m	55 26 7 58	—	I	♂	27	28	2	rotten
	— — —	2724	54°48′ N 8°00′ E [21 m] [1])	54 48 8 00	English	I	♂	28	28	0	sound
	— — 10	2655	3 miles NE of Slugen N 19 m	55 37 7 51	Danish	I	♀	29	29.5	1	tail dry
	— — —	2690	3 — SW of Vyl Light-ship —	55 21 7 42	—	I	♀	30	31	1	fresh
	— — —	2741	3 — SW of Cancer 17 m	55 27 7 59	—	I	♂	26	26	0	—
	— — 11	2705	3 — — —	55 27 7 59	—	I	♀	27	27	0	—
	— — —	2726	3 — — —	55 27 7 59	—	I	♂	27	28	1	—
	— — —	2732	3 — — —	55 27 7 59	—	I	♀	28	29	1	—
	— — 12	2633	1 mile SW of Nymindegab 9 m	55 48 8 09	—	I	♀	28	29	1	—
	— — 13	2648	12 miles WSW of Graadeep 19 m	55 19 7 58	—	I	♀	29	29.5	0	—
	— — 14	2678	3 — NW of Ringebjerg Bn. 11 m	55 38 8 04	—	I	♂	26	25	0	dry

[1]) Depths stated in brackets are not reported.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture											
	Date	No. on Label	Locality reported	Central Position (Approximately N E)	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment No. 1 1906 (Continued).	1906 May 14	2694	Off Kærgaarde Bn. 11 m	55° 42′ 8° 07′	Danish	I	♀	26	27	1	
	— — 14	2725	3 miles N of Søren Bovbjergs Knob 13 m	55 37 7 56	—	I	♀	28	28.5	0	fresh
	— — 15	2604	2 — NE of Slugen N —	55 36 7 50	—	I	♂♀	26	27.5	1	—
	— — —	2607	5 — N of Søren Bovbjergs Knob 15 m	55 38 7 57	—	I	♀	29	30.5	1	—
	— — —	2687	2 — N of Horns Reef Light-ship [30 m]	55 37 7 18	—	I	♂♀	30	31.5	1	—
	— — 16	2635	2 — WSW of Kærgaarde 12 m	55 41 8 06	—	I	♀	26	27.5	1	—
	— — 17	2618	Off Kærgaarde 11 m	55 42 8 07	—	I	♀	26	27	1	
	— — —	2656	— —	55 42 8 07	—	I	♂♀	25	25.5	0	
	— — —	2729	[North Sea]		—	I	♂♀	30	31	1	
	— — 18	2707	8 miles E of Vyl Light-ship 18 m	55 26 7 58	—	I	♂♀	31	32	1	tail dry
	— — 20	2663	10 — WSW of Graadeep 17 m	55 20 8 01	—	I	♀	25	26.5	2	tail a little dry
	— — —	2675	3 — S of Cancer 13 m	55 26 8 03	—	I	♀	26	26.5	0	
	— — —	2723	3 — — —	55 26 8 03	—	I	♀	28	28.5	0	fresh
	— — 21	2620	2 — WSW of Kærgaarde 12 m	55 41 8 06	—	I	♂♀	29	30	1	—
	— — 24	2747	NW of Kærgaarde Bn. 14 m	55 42 8 07	—	I	♀	27	29	2	—
	— — 25	2683	8 miles WNW of Graadeep 17 m	55 27 8 01	—	I	♀	27	28.5	1	—
	— — 26	2605	2 — W by N of Nymindegab 12 m	55 48 8 08	—	I	♀	25	27	3	rotten
	— June 2	2603	10 — WSW of Graadeep 19 m	55 20 8 01	—	II	♀	29	29.5	1	tail dry
	— — 3	2657	11 — SW of Vyl Light-ship 21 m	55 14 7 35	—	II	♀	28	29.5	1	good
	— — 3	2735	8 — S of Vyl Light-ship —	55 16 7 48	—	II	♂♀	27	28.5	1	fresh
	— — 4	2634	[North Sea]		—	II	♀	30		[1]	label only
	— — 4	2712	14 miles W of Red Cliff Light 19 m	54 53 7 57	—	II	♀	28	30.5	2	good
	— — 28	2692	55° 25′ N 7° 55′ E 17 m	55 25 7 55	English	II	♀	26		[2]	label only
	— July 14	2636	16 miles WSW of Graadeep [21 m]	55 16 7 52	Danish	III	♀	24	27	3	fresh
	— — 29	2665	25 — SW by S of Bovbjerg 23 m	56 07 7 52	—	III	♂♀	27	30.5	4	tail dry
	— Aug. 2	2651	14 — W by N of Horns Reef Light-ship 34 m	55 33 6 55	—	IV	♂♀	28	32	4	fresh
	— — 10	2625	[The North-Sea]		English	IV	♂♀	24	29	5	sound
	— — 31	2619	25° 20′ N 5° 35′ E [50 m]	55 20 5 35	German	IV	♂♀	26	28	2	
	— Sept. 2	2700	6 miles NW of Horns Reef Light-ship 31 m	55 37 7 11	Danish	V	♀	28	32.5	4	fresh
	— Oct. 17	2660	55° 30′ N 7° 10′ E [30 m]	55 30 7 10	German	VI	♂♀	27	30	3	
	— Nov. 1	2686	55 44 N 5 02 E [37 m]	55 44 5 02	English	VII	♀	29		[5]	
	1907 Jan. 10	2730	55 49 N 5 15 E 47 m	55 49 5 15	—	IX	♀	27	33.5	6	sound
	— April 9	2749	55 12 N 2 37 E 32 m	55 12 2 37	—	XII	♂	29	35	6	—
Experiment No. 2 1906 April 10 N of Slugen 55° 34′ N 7° 46′ E 13 m »Thor« St. 805 50 Plaice liberated (No. 2751—2800)	1906 April 10	2766	Off Nymindegab 13 m	55° 48′ 8° 09′	Danish	0	♀	28	28.5	0	living
	— — —	2780	— —	55 48 8 09	—	0	♂♀	29	29.5	0	—
	— — —	2782	— —	55 48 8 09	—	0	♀	28	28	0	—
	— — 12	2755	1 mile W by S of Slugen N 19 m	55 34 7 46	—	0	♀	28	28	0	
	— — —	2760	3 miles NW of Slugen N 17 m	55 36 7 43	—	0	♂♀	27	26.5	0	
	— — —	2762	— — —	55 36 7 43	—	0	♀	27	26.5	0	
	— — —	2763	2 miles — 15 m	55 35 7 45	—	0	♀	29	28.5	0	
	— — —	2768	— — —	55 35 7 45	—	0	♂♀	30	29.5	0	
	— — —	2770	½ mile SW of Slugen N —	55 34 7 47	—	0	♀	32	31	0	
	— — —	2779	1 mile W by S of Slugen N 19 m	55 34 7 46	—	0	♀	28	28	0	
	— — —	2786	— — —	55 36 7 43	—	0	♂♀	26	26	0	
	— — —	2788	3 miles NW of Slugen N 17 m	55 36 7 43	—	0	♀	28	28.5	0	
	— — —	2789	— — —	55 36 7 43	—	0	♀	29	28.5	0	
	— — —	2793	2 miles — 15 m	55 35 7 45	—	0	♂	24	23.5	0	
	— — —	2795	4 — WSW of Cancer —	55 27 7 56	—	0	♂♀	27	27	0	
	— — —	2798	2 — NW of Slugen N 17 m	55 35 7 45	—	0	♀	27	26	0	
	— — 13	2754	4 — NW by W of Slugen N 15 m	55 35 7 41	—	0	♂♀	26	26	0	
	— — 18	2765	1 mile W of Slugen N 17 m	55 34 7 46	—	0	♀	27	27.5	0	
	— — —	2767	— — —	55 34 7 46	—	0	♂	25	25.5	0	

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture: Date	No. on Label	Locality reported		Central Position (Approximately) N	Central Position (Approximately) E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment	1906 April 18	2774	1 mile W of Slugen N	17 m	55°34′	7°46′	Danish	0	♂	26	25.5	0	
No. 2 1906	— — —	2778	1 — —	—	55 34	7 46	—	0	♀	29	29	0	
(Continued).	— — 21	2751	Northern part of Slugen	15 m	55 36	7 46	—	0	♀	29	30	1	
	— — —	2797	2 miles NW of Munken	—	55 32	7 49	—	0	♀	28	27.5	0	
	— — 22	2752	2 — —	—	55 32	7 49	—	0	♂	31	31	0	
	— — —	2791	4 — SW of Vyl Light-ship	23 m	55 20	7 41	—	0	♂	26	26.5	0	
	— — 23	2783	1/2 mile W of Slugen N	15 m	55 34	7 47	—	0	♀	27	27.5	0	
	— — 25	2764	3 miles WNW of Slugen N	11 m	55 35	7 42	—	0	♂	26	27	1	
	— — 26	2771	1 mile SW of Slugen N	19 m	55 33	7 47	—	0	♂	30	30	0	
	— — 27	2794	At the Light-buoy, Slugen N	15 m	55 34	7 48	—	0	♀	27	27.5	0	
	— — 30	2758	1 mile SW of Slugen N	19 m	55 33	7 47	—	0	♀	29	29.5	0	
	— May 3	2787	5 miles SE of Vyl Light-ship	—	55 21	7 52	—	I	♀	27	28	1	
	— — 4	2769	1 mile W of Kærgaarde Bn.	8 m	55 42	8 08	—	I	♂	25	25	0	
	— — —	2790	1 — WSW of Kærgaarde Bn.	11 m	55 41	8 08	—	I	♂	27	27.5	0	
	— — 14	2756	3 miles N of Slugen N	20 m	55 37	7 47	—	I	♀	28	28.5	0	
	— — —	2785	8 — SSW of Blaavand	15 m	55 25	8 03	—	I	♂	27	27.5	0	fresh
	— — 15	2792	3 — NE of Slugen N	14 m	55 37	7 51	—	I	♀	25	25	0	—
	— — 16	2757	6 — —	13 m	55 39	7 53	—	I	♀	27	27	0	
	— — —	2773	Off Ringebjerg, 4 miles from shore	11 m	55 36	8 00	—	I	♀	29	30	1	
	— — 19	2775	1 mile SW of Slugen N	17 m	55 33	7 47	—	I	♀	26	27.5	1	fresh
	— — 24	2753	Off Kærgaarde	11 m	55 41	8 07	—	I	♀	30	31.5	1	living
	— — 25	2759	2 miles NW of Kærgaarde	—	55 43	8 07	—	I	♂	28	28.5	0	fresh
	— — 30	2777	Horns Reef Light-house [?]	15 m			English	I	♂	27	27.5	0	sound
	— June 10	2784	55°37′ N 7°18′ E	17 m	55 37	7 18	—	II	♂	30	31	1	—
	— — 18	2776	55 55 N 7 40 E	[28 m]	55 55	7 40	—	II	♀	27	27.5	0	—
	— Aug. 6	2796	56 25 N 6 40 E	[45 m]	56 25	6 40	German	IV	♂	28	31	3	
	— Septbr. 1	2781	[North Sea]				English	V	♂	30	35	5	
Experiment	1907 Apr. c. 27	3877	3 miles SW of Slugen N	15 m	55 31	7 44	Danish	0	♂	23.5	22.5	0	good
No. 5 1907	— — 28	3817	1 mile NW of Graadeep Light-ship	—	55 22	8 06	—	0	♂	23	21.5	0	dry
April 27	— — 29	3829	6 miles NW by W of Graadeep	[16 m]	55 28	8 05	—	0	♀	24.5	24	0.5	—
4 miles WSW	— May 1	3807	2 — SE of Vyl buoy	[18 m]	55 25	7 53	—	I	♀	26.5	[22]	[0]	
of Cancer buoy,	— — —	3822	10 — W by N of Graadeep	[14 m]	55 25	7 57	—	I	♂	28	28	0.5	tail a little dry
North Sea	— — —	3835	2 — SW of Cancer	15 m	55 28	8 00	—	I	♀	27	27	0	good
55° 27′ N 7° 56′ E	— — —	3851	3 — W of Slugen N [?]	16 m			—	I	♂	24	23.5	0	—
11—13 metres	— — —	3852	2 — SW of Cancer	15 m	55 28	8 00	—	I	♀	26	26	0	—
»Thor« St. 976	— — —	3870	2 — —	—	55 28	8 00	—	I	♂	23.5	23	0	—
100 Plaice liberated	— — 2	3801	3 — SSW —	17 m	55 26	8 01	—	I	♂	27	27	0	—
(No. 3801—3900)	— — —	3802	10 — W by N of Graadeep	15 m	55 25	7 57	—	I	♂	24.5	24	0	—
	— — —	3811	W of Fanø	17 m			German	I	♂	23.5	22	0	
	— — —	3816	9 miles W of Fanø	—			—	I	♂	23	22	0	
	— — —	3820	W of Fanø	—			—	I	♀	24	23	0	
	— — —	3831	4 miles NE of Vyl Light-ship	15 m	55 27	7 49	Danish	I	♀	23	22.5	0	tail dry
	— — —	3842	6 — SSW of Cancer	—	55 23	8 00	—	I	♀	24	23.5	0	good
	— — —	3849	4 — NE of Vyl Light-ship	—	55 27	7 49	—	I	♀	27	26	0	somewhat dry
	— — —	3854	6 — SSW of Cancer	—	55 23	8 00	—	I	♂	23.5	23	0	tail dry
	— — —	3885	7 — W by S of Cancer	17 m	55 26	7 51	—	I	♀	25	25	0	good
	— — 6	3809	1 mile ENE of Slugen N	11 m	55 35	7 50	—	I	♀	28	27.5	0	—
	— — 7	3837	3 miles SW of Munken	[11 m]	55 29	7 50	—	I	♀	22.5	18	0	
	— — 8	3819	W of Blaavand Point				German	I	♂	28	23	0	
	— — 9	3898	Close S of Tuxen	7.5 m	55 32	7 43	Danish	I	♂	25	24.5	0	good
	— — 11	3840	3 miles E of Slugen N	13 m	55 35	7 53	—	I	♀	24.5	23	0	dry
	— — 16	3896	Off Nymindegab				—	I	♀	23	22	0	tail dry

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately)		Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately[1])	Remarks
				N	E				cm	cm	cm	
Experiment No. 5 1907 (Continued).	1907 May 19	3839	2 miles NW of Slugen N	23 m	55°35′	7°45′	Danish	I	♀	29.5	29.5	0	good
	— — 21	3836	4 — NNW of Vyl Light-ship	12 m [?]			—	I	♂	24.5	24	0.5	a little dry
	— — 23	3853	10 — NW of Vyl buoy	15 m	55 32	7 35	—	I	♀	29.5	30	1.5	somehw. dry
	— — 24	3889	10 — N by W of Vyl Light-ship	11 m	55 32	7 38	—	I	♀	22.5	[18.5]	[0]	dry; tail hurt
	— — 25	3855	3 — N of Søren Bovbjergs Knob	9 m	55 36	7 57	—	I	♂	22.5	21.5	0	dry
	— — 27	3867	4 — NW of Graadeep Light-ship	13 m	55 24	8 02	—	I	♂	23.5		[0]	label only
	— — 31	3848	4 — N of Vyl Light-vessel	19 m	55 28	7 44	—	I	♀	25.5	24.5	0	tail a little dry
	— June 2	3830	9 — N ½ W of Vyl Light-ship	—	55 32	7 41	—	II	♀	26.5	28	1.5	good
	— — 7	3813	3 — NE of Slugen N	17 m	55 36	7 50	—	II	♂	22	23	1	—
	— — 14	3868	55° 50′ N 7° 40′ E	21 m	55 50	7 40	English	II	♂	25	27	2	sound
	— — 15	3815	5 miles N of Slugen N	13 m	55 39	7 46	Danish	II	♂	23	25.5	2.5	good
	— — —	3859	3 — NW of Slugen N	15 m	55 36	7 43	—	II	♀	26	26	0	—
	— — —	3884	2 — NNW of Slugen N	—	55 35	7 45	—	II	♀	25.5	24.5	0	quite dry
	— — 16	3803	6 — N of Vyl Light-ship	17 m	55 29	7 43	—	II	♀	24.5	20.5	0	tail hurt
	— — 20	3812	2 — NNW of Slugen N	15 m	55 35	7 45	—	II	♀	23	23.5	1.5	quite dry
	— — 21	3861	2 — —	16 m	55 34	7 45	—	II	♂	25.5	27	2	tail somehw. dry
	— July 1	3872	4 — NNE of Slugen N	15 m	55 38	7 49	—	III	♀	22	23.5	1.5	good
	— — 7	3828	3 — —	—	55 37	7 49	—	III	♂	22	26	4	—
	— — 10	3899	10 — N of Slugen N	17 m	55 44	7 44	—	III	♀	28.5	31.5	3	—
	— — 23	3810	12 — —	19 m	55 46	7 43	—	III	♀	22	25	3	—
	— August 4	3834	20 — NW of Slugen N	24 m	55 45	7 17	—	IV	♂	24.5	28.5	4	—
	— — 6	3804	55° 16′ N 6° 10′ E	41 m	55 16	6 10	English	IV	♂	23.5	27	3.5	sound
	— Sept. 26	3805	15 miles NNW of Slugen N	18 m	55 46	7 32	Danish	V	♂	22.5	26.5	4	good
	— — 27	3806	54° 58′ N 5° 02′ E	41 m	54 58	5 02	English	V	♀	26	31	5	sound
	— — —	3821	22 miles NW by N of Slugen N	23 m	55 49	7 19	Danish	V	♀	22	24.5	2.5	
	— Novbr. 11	3893	55° 38′ N 7° 10′ E	30—32 m	55 38	7 10	English	VII	♂	25	31	6	maturing
	— — 28	3826	55 10 N 7 30 E	41 m	55 10	7 30	German	VII	♀	26.5	30	4.5	dried
	— Decbr. 2	3818	56 37 N 7 51 E	19 m	56 37	7 51	English	VIII	♀	22.5	31.5	9	sound; immature
	1908 Jan. 4	3838	55 35 N 7 23 E	21 m	55 35	7 23	—	IX	♀	24	32.5	8.5	immature; slightly sore
	1909 April 21	3883	55 12 N 3 54 E	41—45 m	55 12	3 54	—	XXIV	♀	22	35.5	13.5	sound
Experiment No. 6 1907 April 29 Slugen North 55° 34′ N 7° 44′ E 11—12 metres »Thor« St. 979 100 Plaice liber. (No. 3901—4000)	1907 April 30	3910	10 miles W of Slugen N	13 m	55°32′	7°34′	Danish	0	♀	27.5	27	0	good
	— — —	3912	4 — —	11 m	55 34	7 41	—	0	♀	24.5	23.5	0	—
	— — —	3936	29 — NNW of Slugen N	11 m [?]			—	0	♂	24.5	23.5	0	—
	— — —	3951	4 — W of Slugen N	11 m	55 34	7 41	—	0	♀	29	28.5	0	—
	— — —	3958	4 — NNW of Slugen N	—	55 35	7 41	—	0	♀	24.5	23.5	0	—
	— — —	3977	10 — W of Slugen N	13 m	55 32	7 34	—	0	♂	25	24.5	0	—
	— — —	3984	10 — —	—	55 32	7 34	—	0	♀	27.5	27	0	—
	— May 1	3903	10 — N by W of Vyl Light-ship	[25 m]	55 32	7 38	—	I	♀	30.5	30	0	—
	— — —	3905	16 — NW by W of Blaavand	[14 m]	55 39	7 39	—	I	♀	30.5	29.5	0	—
	— — —	3920	2 — W of Slugen N	17 m	55 33	7 45	—	I	♀	27	26.5	0	—
	— — —	3929	6 — W by S of Cancer	—	55 26	7 53	—	I	♀	26	25	0	—
	— — —	3942	6 — —	—	55 26	7 53	—	I	♀	24.5	24	0	—
	— — —	3953	16 — NW by W of Blaavand	[14 m]	55 39	7 39	—	I	♀	25	24	0	—
	— — —	3989	6 — W by S of Cancer	17 m	55 26	7 53	—	I	♂	25	24.5	0	—
	— — 2	3982	6 — —	—	55 26	7 53	—	I	♀	24.5	23.5	0	not good
	— — 6	3968	3 — WNW of Slugen N	13 m	55 35	7 43	—	I	♀	26	25.5	0	—
	— — —	3996	3 — —	—	55 35	7 43	—	I	♀	24	23	0	—
	— — 8	3908	3 — SE by S of Slugen N	12 m	55 32	7 51	—	I	♀	26.5	26	0	good
	— — —	3981	2 — NW of Munken	11 m	55 32	7 49	—	I	♀	27.5	27	0	tail a little dry
	— — —	3999	2 — NW of Slugen N	15 m	55 35	7 45	—	I	♀	28.5	28	0	tail dry
	— — 9	3921	2 — —	—	55 35	7 45	—	I	♀	29	29.5	1	tail somehw. dry
	— — —	3937	5 — N of Vyl Light-ship	—	55 28	7 43	—	I	♀	24	23	0	good

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately) N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment No. 6 1907 (Continued).	1907 May 9	3978	2 miles NW of Slugen N	15 m	55° 35′	7° 45′	Danish	I	♂	24.5	24	0	good
	— — 12	3918	10 — N of Vyl Light-ship	—	55 32	7 41	—	I	♀	29.5	29	0	tail dry
	— — 13	3933	8 — NNW of Vyl Light-ship	21 m	55 30	7 37	—	I	♂	24	24	0	good
	— — —	3946	6 — NW of Vyl Light-ship	—	55 27	7 36	—	I	♀	27	26.5	0.5	a little dry
	— — 14	3922	3 — NE of Slugen N	6 m [?]			—	I	♀	24	23.5	0	good
	— — 15	3955	5 — NNW of Slugen N	15 m	55 38	7 43	—	I	♂	28.5	29	0.5	—
	— — 16	3994	4 — NW of Slugen N	14 m	55 36	7 42	—	I	♀	24.5	25	0.5	—
	— — 18	3991	3 — WNW of Slugen N	13 m	55 35	7 43	—	I	♂	26	27	1.5	tail dry
	— — 21	3972	11 — NNW of Vyl Light-ship	15 m	55 32	7 33	—	I	♀	29.5	30	0.5	good
	— — 22	3917	4 — N by W of Vyl Light-ship	17 m	55 29	7 43	—	I	♂	24.5	25.5	1	—
	— — —	3931	3 — NW of Slugen N	19 m	55 36	7 43	—	I	♂	29.5	29.5	0	—
	— — —	3961	5 — NW of Slugen	13 m	55 37	7 40	—	I	♂	24	24	0.5	tail dry
	— — —	3987	5 — —	—	55 37	7 40	—	I	♂	24	24.5	1	tail a little dry
	— — 26	3904	1 mile NNW of Slugen N	19 m	55 35	7 47	—	I	♂	30.5	32	1.5	good
	— — 31	3952	4 miles —	12 m	55 35	7 41	—	I	♂	26	27	1	—
	— June 2	3975	4 — —	11 m	55 35	7 41	—	II	♀	29	29.5	1	tail a little dry
	— — 4	3935	6 — N by W of Vyl Light-ship	19 m	55 30	7 41	—	II	♂	30.5	31.5	1	good
	— — —	3944	6 — NNW of Vyl Light-ship	—	55 30	7 40	—	II	♂	24	25	1	—
	— — —	3964	1 mile W of Slugen N	13 m	55 34	7 46	—	II	♀	26	26.5	0.5	—
	— — 5	3906	6 miles NNW of Vyl Light-ship	19 m	55 30	7 40	—	II	♀	29.5	32	2.5	—
	— — —	3976	6 — —	—			—	II	♂	27.5	28.5	1	—
	— — 7	3943	3 — NW of Slugen N	15 m	55 36	7 43	—	II	♀	23.5	23	0.5	somehw. dry
	— — —	3965	6 — N of Vyl Light-ship	17 m	55 30	7 43	—	II	♂	23	24	1	good
	— — 9	3934	6 — —	16 m	55 30	7 43	—	II	♀	27	28	2	somehw. dry
	— — 13	3950	55° 45′ N 7° 45′ E	19 m	55 45	7 45	English	II	♂	27.5	27	0.5	dried and salted
	— — c. 15	3945	[North Sea]				—	II	♂	27		[1]	
	— — 15	3990	2 miles NNW of Slugen N	15 m	55 36	7 46	Danish	II	♀	26.5	26	0.5	dry
	— — 21	4000	55° 55′ N 7° 35′ E	24 m	55 55	7 35	English	II	♀	29	32	3	sound
	— — 24	3926	NW of Bovbjerg	21 m	56 32	7 59	Danish	II	♀	24	28.5	5.5	salted
	— July c. 10	3959	[North Sea]				English	III	♀	25	26	1	estimated
	— — 10	3971	14 miles N of Slugen N	17 m	55 48	7 42	Danish	III	♂	24	26	2	good
	— — 28	3998	40 miles NW of Horns Reef	39.5 m	55 50	6 46	German	III	♀	27	32	5	
	— Aug. 12	3956	23 — NNW of Slugen N	24 m	55 52	7 24	Danish	IV	♂	23	28.5	5.5	good
	— — 17	3941	20 — N of Slugen N	23 m	55 53	7 40	—	IV	♂	24.5	29	4.5	—
	1908 April 11	3992	1 mile S of Tangen's Light-buoy	13 m	56 39	11 00	—	XII	♀	24.5	32.5	8.5	IV gr. tail dry
	— Octbr. 8	3957	55° 30′ N 4° 30′ E	[33 m]	55 30	4 30	Dutch	XVIII	♂	28	39	11	fresh
Experiment No. 1 1908 March 17 4 miles SW by W of Cancer, North Sea 55° 26′ N 7° 57′ E 13 m 75 Plaice liber. (Da. 8, No. 1—75)	1908 March 21	5	1 1/2 miles SW of Cancer	12 m	55° 28′	8° 01′	Danish	0	♀	23.5	23	0	good
	— — —	14	1 1/2 — —	—	55 28	8 01	—	0	♀	23.5	24.5	0	—
	— — —	15	1 1/2 — —	—	55 28	8 01	—	0	♂	23.5	23	0	—
	— — —	36	1 1/2 — —	—	55 28	8 01	—	0	♀	24.5	24	0	—
	— — —	47	1 1/2 — —	—	55 28	8 01	—	0	♀	23	23	0	—
	— — —	49	1 1/2 — —	—	55 28	8 01	—	0	♀	24.5	24	0	—
	— — —	69	1 mile —	11 m	55 29	8 01	—	0	♂	24	23.5	0	—
	— — 22	35	3/4 — NW of Graadeep Light-ship	13 m	55 22	8 06	—	0	♂	22.5	22	0	—
	— — 23	44	1/2 — NNW of Graadeep Light-ship	—	55 22	8 07	—	0	♀	24.5	24	0	head and tail a little dry
	— — 25	3	5 miles NW of Graadeep	15 m	55 28	8 08	—	0	♂	22.5	22	0	head dry
	— — —	74	5 — —	—	55 28	8 08	—	0	♂	23.5	23	0	—
	— April 5	7	1/2 mile NE of Slugen N	—	55 35	7 50	—	I	♂	24	24	0	good
	— — 7	68	4 miles S of Cancer	—	55 25	8 03	—	I	♀	23	22.5	0	—
	— — 8	38	2 — —	—	55 27	8 02	—	I	♀	23.5	23.5	0	—
	— — —	61	2 — —	—	55 27	8 02	—	I	♂	24.5	25	0.5	—

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture: Date	No. on Label	Locality reported		Central Position (Approximately) N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately	Remarks
										cm	cm	cm	
Experiment	1908 April 9	40	4 miles NNW of Vyl Light-ship	15 m	55°27′	7°41′	Danish	I	♂	26	25.5	0	tail a little dry
No. 1 1908	— — 10	23	2 — NW of Graadeep Light-ship	—	55 23	8 05	—	I	♀	25	24	0	head and tail dry
(continued).	— — 10	75	1½ — S by W of Cancer	—	55 28	8 02	—	I	♂	22.5	22.5	0	good
	— — 11	9	2 — SE of Vyl buoy	16 m	55 26	7 53	—	I	♂	24	24	0	—
	— — 11	13	1 mile SSW of Cancer	9 m	55 28	8 02	—	I	♂	26	26	0	—
	— — 11	28	2 miles SE of Vyl buoy	16 m	55 26	7 53	—	I	♀	25	25	0	—
	— — 11	60	½ mile SE of Cancer	9 m	55 29	8 03	—	I	♀	23.5	23	0	—
	— — 13	53	10 miles W of Graadeep	19 m	55 23	7 58	—	I	♂	23.5	22.5	0	quite dry
	— — 28	51	6 — NW by W of Slugen N	15 m	55 36	7 38	—	I	♀	24	23.5	0	tail a little dry
	— — 28	57	4 — SSW of Cancer	13 m	55 25	8 01	—	I	♂	25	25	0	good
	— — 30	8	4 — WSW of Cancer	15 m	55 27	7 56	—	I	♀	26	25.5	0	not good
	— — 30	55	2 — WNW of Slugen N	—	55 34	7 44	—	I	♀	23.5	22.5	0	head and tail dry
	— May 1	73	3 — W of Blaavand Point	13 m	55 32	8 00	—	II	♂	23.5	22.5	0	— —
	— — 2	52	2 — WNW of Slugen N	15 m	55 34	7 44	—	II	♂	23	23	0	good
	— — 5	29	At Slugen N-buoy	26 m	55 35	7 49	—	II	♂	24.5	24	0	—
	— — 7	46	3 miles WNW of Slugen N	19 m	55 34	7 47	—	II	♂	24.5	24.5	0.5	tail a little dry
	— — 7	62	6½ — W by N of Graadeep	17 m	55 25	8 04	—	II	♂	24	25	1	good
	— — 8	58	6 — NE of Slugen N	13 m	55 39	7 53	—	II	♀	25	25	0	—
	— — 9	70	4 — NE of Slugen N	15 m	55 38	7 52	—	II	♂	23	23	0	—
	— — 10	6	1 mile ENE of Slugen N	13 m	55 35	7 50	—	II	♀	24.5	24.5	0.5	tail a little dry
	— — 12	30	5 miles W of Ringebjerg	—	55 36	7 58	—	II	♀	24.5	24.5	0	good
	— — 12	64	4 — NW of Blaavand	15 m	55 36	7 58	—	II	♂	25	25	0	—
	— — 13	25	5 — W of Ringebjerg	13 m	55 36	7 58	—	II	♀	23.5	24	0.5	—
	— — 16	32	1 mile NW of Slugen N	17 m	55 35	7 46	—	II	♂	24	24	0	—
	— — 18	34	2 miles SE of Vyl buoy	—	55 25	7 53	—	II	♂	23.5	23.5	0	—
	— — 30	71	9 — W by S of Blaavand Point	—	55 30	7 54	—	II	♀	23.5	22.5	0	rotten
	— June 7	1	55° 55′ N 7° 46′ E	24 m	55 55	7 46	English	III	♂	26	25.5	0.5	salted and dried
	— July 12	56	SW of Lyngvig Light	—	55 54	7 55	Danish	IV	♀	23	24.5	2.5	dry
	— Sept. 20	45	3 miles W by S of Sønder Lyngvig	19 m	56 03	8 01	—	VI	♀	24.5	26.5	2	good
	— — 28	27	¾ mile N of Vyl Light-ship	—	55 24	7 45	—	VI	♀	23	27	4	—
	— Dec. 22	54	55° 28′ N 7° 10′ E	28 m	55 28	7 10	English	IX	♀	23	30.5	7.5	sound; gutted
	1909 May 3	66	54° 35′ N 7° 38′ E	25 m	54 35	7 38	—	XIV	♂	24	31.5	7.5	— —
	— June 8	2	(Found on pontoon at Grimsby harbour)				—	XV	♂	22	26.5	4.5	—
Experiment	1908 March 21	134	1½ miles SW of Cancer	13 m	50°28′	8°01′	Danish	0	♂	28	28	0	good
No. 2 1908	— — 28	129	½ mile NE of Slugen N	15 m	55 35	7 48	—	0	♂	23	22.5	0	tail a little dry
March 17	— April 8	87	6 miles N by W of Vyl Light-ship	—	55 29	7 42	—	I	♂	23.5	23	0	good
½ mile SSE of	— — 9	94	2 — SSW of Cancer	—	55 27	8 02	—	I	♂	24	24.5	0.5	—
Cancer, North Sea.	— — 9	138	1 mile SE of Cancer	13 m	55 29	8 04	—	I	♂	25.5	25	0	—
55° 29′ N 8° 03′ E.	— — 9	139	2 miles SSW of Cancer	15 m	55 27	8 02	—	I	♀	26	26	0	—
13 m.	— — 9	148	2 — SSW of Cancer	—	55 27	8 02	—	I	♂	30	22.5	0	—
75 Plaice liber.	— — 10	121	1½ — S by W of Cancer	—	55 28	8 02	—	I	♂	25.5	25.5	0	—
(Da 8 No. 76—150).	— — 10	122	2 — NW of Graadeep Light-ship	—	55 23	8 05	—	I	♂	26.5	26	0	head and tail dry
	— — 11	83	1 mile E by S of Cancer	11 m	55 29	8 06	—	I	♀	24	23.5	0	good
	— — 11	130	1 — SE of Cancer	14 m	55 29	8 04	—	I	♀	23.5	23	0	head and tail dry
	— — 11	135	4 miles S of Cancer	9 m	55 26	8 04	—	I	♂	29	28	0	tail dry
	— — 11	142	3 — SW of Cancer	17 m	55 27	8 00	—	I	♀	26	25.5	0	good
	— — 11	147	4 — SW of Cancer	12 m	55 26	7 58	—	I	♀	27.5	27	0	head and tail dry
	— — 12	144	3 — E by N of Vyl Light-ship	21 m	55 25	7 50	—	I	♂	29	28.5	0	— —
	— — 13	99	4 — SW of Cancer	12 m	55 26	7 58	—	I	♂	23.5	24.5	1	good
	— — 14	80	6 — NW of Graadeep	13 m	55 29	8 06	—	I	♂	23.5	22.5	0	—
	— — 15	119	2 — N of Slugen N	11 m	55 36	7 45	—	I	♀	23	22.5	0.5	somehw. dry
	— — 17	84	1 mile SW of Cancer	13 m	55 29	8 01	—	I	♂	24	24	0	good
	— — 17	112	1½ miles W of Slugen N	11 m	55 34	7 46	—	I	♀	22.5	22.5	0	—
	— — 17	126	5 — E by N of Vyl Light-ship	15 m	55 26	7 53	—	I	♀	25	25	0	—
	— — 30	137	S of Tuxen	11 m	55 31	7 43	—	I	♀	28.5	27.5	0	

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture											
	Date	No. on Label	Locality reported	Central Position (Approximately)		Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately [1])	Remarks
				N	E				cm	cm	cm	
Experiment No. 2 1908 (Continued).	1908 May 1	127	2 miles WNW of Slugen N 15 m	55°34′	7°44′	Danish	II	♀	25.5	25.5	0	good
	— — 2	145	3 — — —	55 34	7 43	—	II	♀	26	25.5	0	—
	— — 6	95	3 — N of Søren Bovbjergs Knob 16 m	55 37	7 56	—	II	♀	24.5	24.5	0.5	head and tail a little dry
	— — —	97	290 — E ½ N of Spurn [44 m]	54 26	5 22	English	II	♂	24	23.5	0	sound, immature
	— — —	123	4 — NW of Blaavand Point 15 m	55 37	7 57	Danish	II	♀	28	29	1	good
	— — 7	143	3 — NW of Slugen N 21 m	55 36	7 44	—	II	♂	26	25.5	0	—
	— — 10	116	3 — — 15 m	55 36	7 44	—	II	♀	24.5	24.5	0	—
	— — 12	101	3 — — —	55 36	7 44	—	II	♂	22.5	22.5	0	—
	— — —	102	8 — W of Kærgaarde Bn. 17 m	55 40	7 56	—	II	♂	23	22.5	0.5	dried and salted
	— — 16	90	3 — SW — 15 m	55 40	8 05	—	II	♀	23	23	0	good
	— — —	93	7 — W of Listerdeep 19 m	55 02	8 06	—	II	♂	27.5		[0]	quite dry
	— — 22	76	3 — SW of Munken 11 m	55 29	7 50	—	II	♀	23	22.5	0	good
	— — 23	77	3 — — —	55 29	7 50	—	II	♂	24.5	24.5	0	—
	— — 26	109	Close by Vyl buoy 17 m	55 27	7 50	—	II	♂	22	21.5	0	tail a little dry
	— Septbr. 8	104	16 miles NW of Graadeep 21 m	55 35	7 50	—	VI	♀	22.5	27.5	5	good
	— — 26	111	½ mile NW of Slugen 19 m	55 34	7 47	—	VI	♂	23	25.5	2.5	—
	— Novbr. 1	117	55°32′ N 7°19′ E 30 m	55 32	7 19	English	VIII	♀	23.5	27.5	5	dried
	— — 6	125	55° N 5° E 38 m	55 00	5 00	Dutch	VIII	♂	25.5	32	6.5	sound
	— Decbr. 1	132	55°52′ N 7°15′ E 28 m	55 52	7 15	English	IX	♂	24	27	3	sound, imm.
	1909 April 17	113	1 mile SE of Vyl buoy 19 m	55 26	7 52	Danish	XIII	♀	22.5	28	5.5	good
	— June 17	108	Aalbæk Bay, at Bunken 17 m	57 37	10 28	—	XV	♂	22.5	23.5*	1	**fide* fisherman
	— Decbr. 28	114	Found on pontoon at Grimsby			English	XXI	♂	22	32	10	sound
Experiment No. 2 1909 April 24 Off Lister 55°00′ N 7°50′ E 20 m 100 Plaice liberated (No. 1201—1300)	1909 April 24	1222	54°59′ N 8°0′ E 15 m	54°59′	8°00′	English	0	♀	24.5	22.5	0	salted and dried, not gutted, 38 g (III Gr.)
	— — 25	1237	40 miles SW of Graadeep 19 m	54 52	7 36	Danish	0	♂	24	23.5	0	sound
	— — 27	1219	25 — SW ½ W of Graadeep —	55 07	7 46	—	0	♀	25	25	0	—
	— — —	1223	25 — — —	55 07	7 46	—	0	♀	25	25	0	—
	— May 4	1299	[North Sea]			English	I	♀	30	30	0	sound, not gutted, 212 g
	— — 8	1297	55°0′ N 8°0′ E 15 m	55 00	8 00	—	I	♀	28	27	0	salted and dried
	— — 13	1232	55°0′ N 7°10′ E 25 m	55 00	7 10	—	I	♂	24	23	0	salted and partly dried, not gutted, 94 g (IV Gr.)
	— — 15	1285	54°59′ N 8°03′ E [34 m]	54 59	8 03	—	I	♂	25.5	25	0.5	salted and half dried, slightly wounded, gutted, 93 g
	— — 17	1239	[North Sea]			—	I	♀	25.5	25	0	sound, not gutted, 123 g (IV Gr.)
	— — 21	1261	8 miles SW of Graadeep 21 m	55 19	8 08	Danish	I	♂	24	23.5	0	good
	— — 26	1249	20 — — 18 m	55 09	7 56	—	I	♂	24	25	1	—
	— — —	1263	20 — — —	55 09	7 56	—	I	♂	23.5	24	0.5	—
	— — —	1269	9 — SW by S of Graadeep Light-ship 16 m	55 13	8 02	—	I	♀	25	25.5	0.5	—
	— — —	1279	20 — SW of Graadeep 18 m	55 09	7 56	—	I	♂	24	24.5	0.5	—
	— — 28	1252	16 — — 21 m	55 13	7 59	—	I	♂	24.5	25.5	1	—
	— — —	1300	16 — — —	55 13	7 59	—	I	♀	33	34.5	1.5	—
	— — 29	1270	23 — SW by S of Graadeep 19 m	55 05	7 59	—	I	♂	24.5	24.5	0.5	head hurt and tail dried
	— — —	1290	10 — NW of Red Cliff 16 m	55 02	8 05	—	I	♀	26	25.5	0	good
	— — 30	1203	25 — SW by S of Graadeep 19 m	55 03	7 58	—	I	♂	25	25.5	1	poor, tail slightly dried
	— — —	1216	55°10′ N 8°00′ E [17 m]	55 10	8 00	English	I	♀	24.5	24	0.5	salted and half dried, 76 g (IV Gr.)
	— — —	1267	55 10 N 8 00 E —	55 10	8 00	—	I	♀	25	24.5	0	sound, 111 g (III Gr.)
	— June 2	1291	55 00 N 8 05 E 15 m	55 00	8 05	—	II	♀	28	29.5	1.5	good, not gutted, 245 g
	— — 10	1292	55 30 N 7 05 E 30 m	55 30	7 05	—	II	♂	27.5	27.5	0	— — 140 g
	— — 11	1242	2 miles NW of Graadeep Light-ship 16 m	55 22	8 05	Danish	II	♀	24	24	0	good
	— — —	1287	7 — WNW — 17 m	55 23	7 56	—	II	♀	26.5	28	1.5	—

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture											
	Date	No. on Label	Locality reported	Central Position (Approximately)	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately[1])	Remarks
				N ′ E				cm	cm	cm	
Experiment	1909 June 13	1288	55° 50′ N 7° 10′ E 30 m	55° 50′ 7° 10′	English	II	♀	30	33.5	3.5	good, gutted 252 g
No. 2 1909	— — 14	1236	16 miles WSW of Graadeep Light-ship 21 m	55 17 7 53	Danish	II	♂	24	24	0	good
(Continued).	— — 18	1289	55° 24′ N 7° 45′ E 23 m	55 24 7 45	English	II	♀	27.5	29	2.5	rotten, 176 g (IV Gr.)
	— — 23	1260	9 miles W by S of Vyl Light-ship 26 m	55 20 7 30	Danish	II	♂	24.5	25	1	head very dry, tail crooked
	— — —	1293	5 — S by E of Vyl Light-ship 24 m	55 20 7 50	—	II	♀	27	28	2	salted and dried
	— Novbr. 22	1275	[North Sea]. — Found at London (sent from Grimsby)		English	VI	♀	25.5	28	2.5	immature, good, not gutted, 188 g
	1910 March 24	1240	[North Sea]. — Found among the fishes on Ymuiden market		Dutch	XI	♀	24.5	28.5	4	good, gutted, 175 g
	— April 3	1235	3 miles W of Graadeep Light-ship 16 m	55 21 8 02	Danish	XII	♂	24	24	1	bad, dry
	— — 12	1280	1 mile SW of Graadeep 15 m	55 25 8 14	—	XII	♂	25.5	26	0.5	good
	— — 14	1245	55° 09′ N 7° 55′ E 19 m	55 09 7 55	English	XII	♂	24	29	5	good, not gutted, 208 g (V Gr.)
	— August 12	1284	36 m	55 25 4 30	—	XVI	♂	27.5	37.5	10	sound, gutted, 540 g
	1911 March 31	1244	7 miles WNW of Red Cliff 15 m	54 58 8 07	Danish	XXIII	♀	23.5	26	2.5	
	— May 6	1248	30 — W of Red Cliff 13 m	54 52 7 48	—	XXV	♂	23.5	30	6.5	good
	— August 24	1211	N of Hanstholm 63 m	57 27 8 29	—	XXVIII	♀	25	45.5	20.5	alive
Experiment	1909 April 28	1318	17 miles WSW of Graadeep Light-ship 18 m	55° 12′ 7° 44′	Danish	0	♂	26	26	0	good
No. 3 1909	— — —	1355	18 — SW by S of Graadeep —	55 09 8 03	—	0	♂	27	27.5	0.5	—
April 25	— — —	1368	16 — SSW of Graadeep 17 m	55 10 8 09	—	0	♂	28.5	28	0	—
9 miles SW by S	— — 29	1335	18 — SW of Graadeep 18 m	55 10 7 59	—	0	♂	26	26.5	0.5	—
of Graadeep Light-	— May 7	1342	5 — W by N of Graadeep Light-ship 16 m	55 21 7 58	—	I	♀	30	30	0	—
ship	— — —	1383	7 — NW of Red Clif —	55 01 8 10	—	I	♀	27	23	0	poor, head dried, tail defective
55° 11′ N 8° 00′ E											
17 m	— — —	1384	4 — WNW of Graadeep Light-ship —	55 22 8 00	—	I	♀	27.5	27	0	good
100 Plaice liberated	— — 10	1347	55° 14′ N 7° 50′ E 21 m	55 14 7 50	English	I	♂	26	25	0	rotten, (IV Gr.) 142 g
(No. 1301—1400)	— — 11	1307	Off Sylt Light 18 m	54 59 8 01	—	I	♀	25.5	25.5	0	sound, not gutted, 147 g (IV Gr.)
	— — —	1317	— —	54 59 8 01	—	I	♂	26.5	25.5	0	sound, not gutted, 150 g (IV Gr.)
	— — —	1328	— —	54 59 8 01	—	I	♀	28.5	27.5	0	slightly stale, not gutted, 154 g (IV Gr.)
	— — 12	1334	6 miles S of Vyl Light-ship 21 m	55 17 7 47	Danish	I	♀	26	26	0	good
	— — —	1354	55° 19′ N 7° 47′ E [38 m]	55 19 7 47	English	I	♂	26		[0]	label only
	— — 15	1320	56 05 N 7 30 E [26 m]	56 05 7 30	—	I	♂	24.5	24.5	0.5	sound, gutted, 112 g
	— — 20	1385	4 miles S of Vyl Light-ship 21 m	55 19 7 47	Danish	I	♂	27.5	28	0.5	good
	— — 21	1304	14 — WSW of Graadeep 16 m	55 18 7 56	—	I	♂	25	25.5	0.5	—
	— — —	1361	4 — ESE of Vyl Light-ship 19 m	55 22 7 53	—	I	♂	25	25.5	0.5	—
	— — 22	1312	10 — WSW of Graadeep 16 m	55 20 8 02	—	I	♀	26	26	0.5	head dried, tail crooked
	— — —	1322	6 — N of Slugen —	55 40 7 45	—	I	♀	26.5	27.5	1	good
	— — —	1364	12 — SW by W of Graadeep 18 m	55 17 8 02	—	I	♀	27.5	28.5	1	—
	— — —	1366	12 — — —	55 17 8 02	—	I	♀	27	27	0	—
	— — 23	1321	By Nordenlund [?] 16 m		German	I	♀	26	25	0	— 133 g
	— — —	1331	3 miles NW of Slugen N 13 m	55 35 7 42	Danish	I	♂	24.5	23	0	poor, very dry
	— — 24	1350	18 — SW of Graadeep 20 m	55 10 7 59	—	I	♀	25	25	0	good
	— — —	1357	3 — SE of Vyl Light-ship —	55 22 7 50	—	I	♀	28	28.5	0.5	—
	— — —	1387	7 — SW of Graadeep 19 m	55 21 8 06	—	I	♂	25.5	27.5	2	—
	— — —	1389	4 — SE of Vyl Light-ship 20 m	55 21 7 51	—	I	♀	31	[22.5]	0	—
	— — 25	1311	18 — SW of Graadeep Light-ship 19 m	55 06 7 51	—	I	♂	26.5	26.5	0	—
	— — 26	1363	16 — SW of Graadeep —	55 13 8 01	—	I	♀	27	28.5	1.5	—
	— — —	1372	12 — — —	55 15 8 04	—	I	♂	26	27	1	—
	— — 27	1359	6 — WNW of Horns Reef Light-ship 35 m	55 35 7 09	—	I	♀	26	26	0	—

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported		Central Position (Approximately)		Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth (Approximately[1])	Remarks
					N	E				cm	cm	cm	
Experiment	1909 May 28	1345	26 miles SW of Graadeep	19 m	55° 04′	7° 51′	Danish	I	♂	27.5	27.5	0.5	bad, head an tail dried
No. 3 1909	— — —	1352	4 — S of Vyl Light-ship	20 m	55 19	7 47	—	I	♀	25.5	26	0.5	good
(Continued).	— — 29	1393	23 — SW by S of Graadeep	19 m	55 05	8 01	—	I	♀	30.5	32	1.5	—
	— June 6	1360	8 — W by S of Amrum Light-ship	24 m	54 30	7 40	—	II	♂	26	26.5	0.5	—
	— — 7	1306	3 — WSW of Graadeep Light-ship	17 m	55 21	8 03	—	II	♂	25.5	26.5	1	—
	— — —	1323	55° 5′ N. 7° 48′ E	19 m	55 05	7 48	English	II	♀	27	28	1	good, not gutted, 185 g
	— — 11	1309	[North Sea]				—	II	♀	27	27	0	good, not gutted, 165 g
	— — 12	1367	9 miles WNW of Graadeep	18 m	55 27	8 00	Danish	II	♀	28	29.5	2	tail dry
	— — 13	1303	10 — SW of Vyl Light-ship	19 m	55 15	7 36	—	II	♂	26.5	27	0.5	good
	— — —	1378	16 — WSW of Graadeep Light-ship	—	55 13	7 44	—	II	♀	30.5	31.5	1	—
	— — 15	1391	5 — S of Vyl Light-ship	—	55 18	7 47	English	II	♀	26	27.5	1.5	— 193 g
	— — 18	1375	7 — WNW of Graadeep Light-ship	17 m	55 23	7 55	Danish	II	♀	28	28.5	0.5	—
	— July 11	1379	27 — N by E of Slugen N	22 m	56 00	7 47	—	III	♀	28	27.5	0	poor
	— — 14	1362	NW of Heligoland	35 m	54 18	7 35	German	III	♀	27	28.5	2.5	very dry, 189 g
	— — —	1377	—	—	54 18	7 35	—	III	♀	27	28.5	2.5	— 195 g
	— Aug. 4	1338	55° 50′ 6° 15′ E	[47 m]	55 50	6 15	—	IV	♂	27	29	2	
	— Sept. 24	1398	Found on Ymuiden market				English	V	♀	28	31.5	3.5	good, gutted, 250 g
	— Oct. 12	1358	55° 40′ N, 4° 40′ E	35 m	55 40	4 40	—	VI	♂	32	33	2	salted and dried
	— — 18	1369	18 miles S of Horns Reef Light-ship	24 m	55 16	7 25	—	VI	♀	28	31.5	4	not gutted, rotten, 288 g (IV Gr.)
	— Nov. 8	1305	55° 21′ N, 7° 4′ E	30 m	55 21	7 04	—	VII	♀	29.5	28.5	0	good, not gutted, 238 g (IV Gr.)
	— — 15	1397	55° 27′ N, 7° 13′ E	23 m	55 27	7 13	—	VII	♀	28	32	4	immature good, not gutted 265 g
	1910 May 24	1382	54° 57′ N, 7° 57′ E	17 m	54 57	7 57	Dutch	XIII	♂	27.6	34.5	7	good 410 g
	— Aug. 10	1395	62 miles SW by W of Graadeep	38 m	54 42	7 02	Danish	XVI	♀	27	35	8	—
Experiment	1910 March 19	1411	15 miles SW by S of Graadeep Light-ship	15 m	55° 07′	8° 02′	Danish	0	♂	25	24.5	0	tail a little crooked, good
No. 1 1910	— — —	1437	10 — NW of Red Cliff	—	55 02	8 06	—	0	♀	24	[24.5]	0	good
March 17	— — —	1446	15 — NNW of Red Cliff	19 m	55 09	8 04	—	0	♀	25	24.5	0	poor, head and end of tail dried
14 miles SW by S of Graadeep Light-ship 55° 09′ N, 8° 00′ E 19 m	— — —	1494	15 — SW by S of Graadeep Light-ship	15 m	55 07	8 02	—	0	♀	26.5	26.5	0	good
	— — —	1496	15 — NNW of Red Cliff	19 m	55 09	8 04	—	0	♀	24	24	0.5	poor, head and end of tail dried
	— — 20	1403	15 — SW of Graadeep Light-ship	21 m	55 12	7 54	—	0	♂	27	27.5	0.5	good
100 plaice liberated (No. 1401—1500)	— — —	1456	15 — —	—	55 12	7 54	—	0	♂	27.5	27.5	0	—
	— — —	1462	10 — —	—	55 14	7 57	—	0	♀	25.5	26	0.5	—
	— — —	1484	15 — —	20 m	55 11	7 55	—	0	♂	26	25	0	poor, dry
	— — 26	1463	26 — —	—	55 00	7 44	—	0	♀	27	27	0	good
	— — 27	1424	By List Red Cliff Light	19 m	55 01	7 54	German	0	♀	26.5	[27.5]	[0]	
	— — 30	1458	20 miles of Graadeep	15 m	55 12	8 03	Danish	0	♂	26.5	26.5	0	good
	— — 31	1425	16 — NW of Red Cliff	17 m	55 06	7 59	—	0	♀	26	26	0	—
	— — —	1428	16 — —	16 m	55 04	7 59	—	0	♂	25	25	0	—
	— — —	1430	15 — S by W of Graadeep Light-ship	19 m	55 08	8 03	—	0	♂	25	25	0	—
	— — —	1440	16 — NW of Red Cliff	16 m	55 04	7 59	—	0	♀	24	23.5	0	—
	— — —	1459	4 — NW of Slugen N	17 m	55 36	7 42	—	0	♀	28	28.5	0.5	—
	— — —	1472	15 — S. by W of Graadeep Light-ship	19 m	55 08	8 03	—	0	♀	24.5	25	0.5	—
	— — —	1474	16 — SW of Red Cliff	16 m	54 45	7 59	—	0	♀	26	26	0	—
	— — —	1477	16 — S by W of Graadeep Light-ship	19 m	55 09	8 03	—	0	♀	23.5	23.5	0	—
	— — —	1478	17 — SSW of Graadeep	15 m	55 11	8 06	—	0	♀	26	25.5	0	—
	— — —	1482	16 — NW of Red Cliff	16 m	55 05	7 59	—	0	♀	27.5	27.5	0	—
	— — —	1489	15 — S by W of Graadeep Light-ship	19 m	55 09	8 03	—	0	♀	24	24.5	0.5	—
	— April 1	1443	10 — SW by S of —	17 m	55 13	8 01	—	I	♂	23.5	23	0	—
	— — 2	1480	17 — —	15 m	55 06	7 57	—	I	♀	28	28.5	0.5	not quite good

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately)		Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately[1]	Remarks
				N	E				cm	cm	cm	
Experiment No. 1 1910 (Continued).	1910 April 3	1415	12 miles NW by N of Red Cliff 17 m	55° 06′	8° 05′	Danish	I	♀	25	25	0	not quite good
	— — 4	1401	1½ — W of Graadeep Light-ship —	55 22	8 05	—	I	♂	25.5	25.5	0	good
	— — —	1420	20 — SSW of Graadeep —	55 08	8 10	—	I	♀	24	24.5	1	poor
	— — —	1435	20 — — —	55 08	8 10	—	I	♀	25.5	26	0.5	good
	— — —	1442	16 — NW of Red Cliff 18 m	55 06	7 57	—	I	♀	24.5	[28.5]	[0.5]	—
	— — 5	1407	20 — SW of Graadeep 15 m	55 12	8 03	—	I	♀	26.5	27	0.5	—
	— — —	1416	10 — SSW — 16 m	55 16	8 12	—	I	♀	24.5	24.5	0.5	poor, head dried
	— — —	1436	4 — NW of Graadeep Light-ship 15 m	55 24	8 02	—	I	♀	24.5	24	0	good
	— — 7	1418	2 — W of Amrum — 19 m	54 35	7 49	German	I	♀	24.5	22	0	altogether dry
	— — 8	1439	3 — SSW of Graadeep — 15 m	55 19	8 07	Danish	I	♂	23	23.5	0.5	good
	— — 12	1454	1 mile SW of — — —	55 21	8 06	—	I	♂	25.5	25.5	0.5	—
	— — 13	1432	10 miles NW of Red Cliff —	55 03	8 06	—	I	♂	23	?	[0.5]	label only
	— — —	1467	16 — — 18 m	55 06	7 58	—	I	♀	27.5	27.5	0	good
	— — —	1469	16 — — 17 m	55 06	7 58	—	I	♀	25	25.5	1	bad, tail dry and crooked
	— — 14	1460	4 — SW of Graadeep Light-ship 18 m	55 18	8 03	—	I	♀	25	25	0.5	spoiled, head and tail dried
	— — 15	1433	4 — SW of Red Cliff 16 m	54 52	8 08	—	I	♀	25	25.5	0.5	good
	— — 17	1429	10 — NNW — 15 m	55 05	8 09	—	I	♀	24	24	0	—
	— — —	1452	10 — — — —	55 05	8 09	—	I	♀	28	29.5	1.5	—
	— — 19	1450	5 — NW of Slugen N —	55 37	7 40	—	I	♀	27	28	1	—
	— — —	1455	4 — SW of Cancer —	55 26	7 59	—	I	♀	25.5	25.5	0	—
	— — 23	1498	8 — NW of Slugen N 19 m	55 40	7 35	—	I	♂	26	?	[0.5]	poor, impossible to measure
	— — 29	1426	Dogger Bank			German	I	♂	24	25	1	
	— May 1	1402	3 miles W of Cancer 11 m	55 29	7 57	Danish	II	♂	26	27	1	good
	— — —	1470	5 — N of the bell-buoy —	55 29	8 06	—	II	♀	24.5	25.5	1	—
	— — 20	1427	5 — NNW of Slugen 15 m	55 38	7 44	—	II	♂	24	24	1	poor, dried
	— — —	1451	Lister-light SE —	55 08	8 09	German	II	♀	27	28	1	
	— — 21	1449	8 miles N by E of Slugen N 17 m	55 42	7 50	Danish	II	♂	24	24.5	1	spoiled, head dry, tail crooked
	— — 25	1414	7 — NW of Red Cliff 15 m	55 02	8 11	—	II	♀	25	?	[1]	label only
	— — 26	1410	NW of Graadeep Light-ship —	55 22	8 06	German	II	♀	26	[29.5]	[1]	dry, soaked before measured
	— — 28	1497	55° N 8° E 19 m	55 00	8 00	Dutch	II	♀	26	27.5	1.5	sound, weight: 213 g
	— June 1	1444	55° 20′ N 7° 55′ E 17 m	55 20	7 55	English	III	♀	24.5	[28.5]	[1]	good, weight: 207 g (gutt.)
	— — 2	1423	55 01 N 7 57 E —	55 01	7 57	Dutch	III	♂	23.5	24.5	1	— — 115 g
	— — 3	1413	54 57 N 8 12 E 19 m	54 57	8 12	—	III	♂	24	22	0	— — 90 g
	— — —	1485	5 miles NNW of bell-buoy 11 m	55 29	8 07	Danish	III	♀	26	24	0	good
	— — —	1499	10 — W of Blaabjerg 17 m	55 42	7 57	—	III	♀	26	27	1	—
	— — 6	1405	54° 50′ N 8° 05′ E 15 m	54 50	8 05	English	III	♂	25.5	27	2	slightly stale, weight 157 g
	— — 7	1412	6 miles W by N of Red Cliff —	54 57	8 10	Danish	III	♂	25.5	26	1.5	spoiled
	— — 8	1461	3 — S of Vyl Light-ship 21 m	55 21	7 46	—	III	♂	25	26	1	good
	— — 11	1491	1 mile NW of Slugen N 19 m	55 35	7 47	—	III	♂	25.5	26	1.5	spoiled
	— July —	1475	4 miles NW of Horns Reef Light-ship 34 m	55 37	7 14	—	IV	♀	27.5	29	1.5	good
	— — 12	1408	60 — WSW of Graadeep — 40 m	54 45	6 38	—	IV	♀	26.5	27	1.5	spoiled and air-dried
	— — 13	1500	64 — — 44 m	54 50	6 48	—	IV	♂	27.5	30.5	3	good
	— — 14	1457	50 — W by N — [26 m]	55 27	6 53	—	IV	♀	24	27	3	—
	— — 31	1493	56° 36′ N 6° 40′ E [45 m]	56 36	6 40	German	IV	♀	25	29	4.5	
	— Novb. 12	1438	By List 29 m	55 05	8 19	—	VIII	♀	27	33.5	6.5	weight: 265 g
	1911 March 21	1422	2 miles SSE of Cancer 13 m	55 27	8 03	Danish	XII	♀	25	29	4	good
	— April 2	1406	20 — SSW of Graadeep 19 m	55 08	8 07	—	XIII	♂	24	28.5	4.5	—
	— — 9	1488	10 — W of Red Cliff 21 m	54 56	7 50	—	XIII	♂	24	27.5	3.5	—
	— — 19	1476	7 — — 13 m	54 56	8 07	—	XIII	♂	22.5	26	3.5	—
	— May 5	1447	By Sylt —	55 00	8 12	German	XIV	♂	23	?	[4]	

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture													
	Date	No. on Label	Locality reported	Central Position (Approximately) N	Central Position (Approximately) E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately[1])	Remarks
									cm	cm	cm	
Experiment	1910 March 27	1520	Graadeep Light ,	15 m	55° 21′	8° 08′	German	0	♂	24	[25]	0	dry, soaked before measured
No. 2 1910	— — 30	1537	4 miles SW of Cancer	—	55 26	7 58	Danish	0	♀	26.5	27	0.5	good
March 17	— — 31	1557	16 — NW of Red Cliff	16 m	55 07	8 01	—	0	♀	25	25	0	
2 miles E of	— — —	1575	8 — W by N of Graadeep	15 m	55 26	8 01	—	0	♀	24.5	25	0.5	good
GraadeepLight-ship	— — —	1599	4 — NW of Slugen N	17 m	55 37	7 41	—	0	♀	25.5	25.5	0	
13 m	— April 2	1509	1 mile SW of Cancer	15 m	55 28	8 02	—	I	♂	27.5	27.5	0.5	rather poor, tail dry
55° 22′ N 8° 11′ E	— — —	1536	10 miles WNW of Graadeep	13 m	55 27	8 00	—	I	♀	23.5	23	0.5	bad, dry
100 Plaice liberated	— — —	1548	2 — SW of Cancer	15 m	55 27	8 02	—	I	♂	25	24.5	0	bad, head and tail
(No. 1501—1600)	— — —	1553	6 — N of Graadeep Light-ship	18 m	55 28	8 06	—	I	♀	26.5	26	0	rather poor, tail dry
	— — 3	1580	8 — W of Graadeep Barre	13 m	55 24	8 03	—	I	♀	25.5	26	0.5	good
	— — —	1587	8 — W of Graadeep	—	55 24	8 03	—	I	♂	27.5	28	0.5	—
	— — 4	1519	10 — —	15 m	55 25	7 59	—	I	♀	24.5	23	0	bad, dry
	— — —	1564	20 — SSW of Graadeep	17 m	55 08	8 05	—	I	♀	24	23.5	0	bad
	— — —	1577	20 — —	—	55 08	8 05	—	I	♂	26.5	27	0.5	good
	— — —	1586	20 — —	—	55 08	8 05	—	I	♂	25	25	0	—
	— — 5	1558	10 — W of Red Cliff	15 m	54 55	8 03	German	I	♀	24	[21]	[0]	entirely dry
	— — —	1561	20 — SW of Graadeep	—	55 07	8 02	Danish	I	♂	27	27	0	good
	— — —	1600	20 — —	—	55 07	8 02	—	I	♀	27	27.5	0.5	—
	— — 7	1581	2 — W of Amrum Light-ship	19 m	54 33	7 49	German	I	♀	26	[22]	[0]	entirely dry
	— — 8	1502	3 — SW of Cancer	14 m	55 27	8 00	Danish	I	♂	26	25.5	0	good
	— — —	1567	10 — W by N of Graadeep	15 m	55 26	7 58	—	I	♀	27	26.5	0	—
	— — —	1569	3 — SW of Cancer ,	14 m	55 27	8 00	—	I	♂	23.5	23	0	—
	— — —	1579	12 — W of Graadeep	—	55 26	7 55	—	I	♂	27	27.5	0.5	—
	— — 9	1566	10 — WNW of Graadeep	15 m	55 28	8 04	—	I	♀	26	26	0	—
	— — 15	1574	4 — SW of Red Cliff	14 m	54 56	8 13	—	I	♀	26.5	26.5	0	—
	— — 16	1501	2 — SW of Cancer	—	55 27	8 01	—	I	♀	24.5	24.5	0	—
	— — —	1531	4 — —	15 m	55 26	7 58	—	I	♂	24.5	24.5	0	—
	— — 17	1570	4 — —	—	55 26	7 58	—	I	♂	22.5	22.5	0	—
	— — —	1588	3 — S by E of Cancer	15 m	55 27	8 04	—	I	♀	28	29	1	—
	— — 23	1550	8 — NW of Slugen N	19 m	55 39	7 34	—	I	♀	26	25.5	0	bad
	— — —	1578	8 — —	—	55 39	7 34	—	I	♀	24	?	[0]	dried and tail very crooked
	— — 28	1526	3 — NW of bell-buoy	10 m	55 28	8 09	—	I	♂	26.5	27	0.5	good
	— — —	1563	2 — N of bell-buoy	—	55 27	8 12	—	I	♂	25.5	25.5	0	—
	— — —	1598	1 mile WSW of Cancer	15 m	55 28	8 02	—	I	♂	27	28	1	—
	— May 1	1584	By Graadeep Light-ship	[14 m]	55 22	8 08	German	II	♀	24.5	25	1	very dry, soaked before measured
	— — 2	1595	5 miles NW of Graadeep Light-ship	11 m	55 27	7 58	—	II	♀	24	24.5	1	— —
	— — —	1596	By Graadeep Light-ship	19 m	55 21	8 05	—	II	♀	24	25	1	— —
	— — 3	1573	3 miles W of Slugen N	13 m	55 35	7 43	Danish	II	♀	25.5	25.5	0.5	good, head slightly dry
	— — —	1585	3 — NW of Slugen	—	55 36	7 44	—	II	♀	25	25	0.5	— head and tail slightly dry
	— — 4	1589	4 — N of bell-buoy	8 m	55 28	8 09	—	II	♀	25.5	25.5	0.5	— tail slightly dry and crooked
	— — 9	1511	4 — —	—	55 28	8 09	—	II	♂	25	26.5	1.5	good
	— — 10	1539	1 mile NE of Slugen N	15 m	55 35	7 50	—	II	♂	25	25	0	—
	— — —	1554	2 miles SE of Cancer	10 m	55 29	8 06	—	II	♀	25.5	26.5	1	—
	— — 14	1551	2 — NE of Slugen N	14 m	55 36	7 51	—	II	♂	26.5	27	1	bad, head and tail dry
	— — 25	1576	1 mile ESE of Cancer	13 m	55 29	8 04	—	II	♀	25.5	26	1	— —
	— — 26	1506	2 miles SW of Cancer	—	55 28	8 00	—	II	♀	27	30	3	good
	— — —	1518	2 — —	—	55 28	8 00	—	II	♂	24	25	1	—
	— — 27	1582	5 — E of Vyl Bank	19 m	55 29	8 04	Dutch	II	♂	25	26	1	sound, 158 g
	— June 2	1544	5 — NW by N of bell-buoy	10 m	55 29	8 08	Danish	III	♂	26	28	2	good
	— — 3	1528	25 — SW of Graadeep	19 m	55 05	7 52	—	III	♀	28.5	29	1.5	spoiled
	— — —	1565	10 — W of Blaabjerg	17 m	55 43	7 57	—	III	♀	25	27.5	2.5	good
	— — 5	1538	10 — S by W of Vyl Light-ship	23 m	55 14	7 41	—	III	♂	25.5	26	0.5	—
	— — —	1545	3 — SW of Vyl Light-ship	22 m	55 21	7 42	—	III	♀	28	30	2	—
	— — 8	1543	4 — NNW Light-ship »Amrum«	19 m	54 37	7 48	Dutch	III	♀	26	29	3	sound, 210 g, gutted

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture											
	Date	No. on Label	Locality reported	Central Position (Approximately) N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment	1910 June 9	1513	4 miles S of Vyl Light-ship 23 m	55°20′	7°46′	Danish	III	♀	24	24.5	0.5	sound, 210 g, gutted
No. 2 1910	— — 11	1555	14 — W by N of Graadeep 19 m	55 25	7 52	—	III	♂	25	26.5	1.5	— —
(Continued).	— — 23	1591	9 — W by S of Graadeep 21 m	55 22	7 57	—	III	♀	24	26	2	good
	— July 13	1593	3 — NW of Horns Reef Light-ship 32 m	55 36	7 16	—	IV	♂	24.5	26.5	2	—
	— — 14	1510	2 — WNW of Horns Reef Light-ship —	55 35	7 16	—	IV	♀	24	26.5	2.5	—
	— Septbr. 8	1549	55°06′ N 5° E 51 m	55 06	5 00	Dutch	VI	♂	24	28	4	— 165 g, gutted
	— — 17	1533	55°19′ N 5°40′ E [50 m]	55 19	5 40	German	VI	♀	25.5	29	4.5	spoiled
	1911 April 6	1559	1 mile SW of Cancer 15 m	55 29	8 02	Danish	XIII	♀	24	29.5	6	good, tail a little crooked
	-- c. — 29	1517	[North Sea]			English	XIII	♀	24.5	31.5	7	— weight: 285 g
	— May 6	1508	W of Sylt 17 m	54 58	7 57	German	XIV	♀	25	31	6	
	— Decbr. 29	1522	56°10′ N 5°20′ E [52 m] ?	56 10	5 20	English	XXI	♀	28.5	40.5	12	sound, entire weight: 665 g
	1912 Febr. 23	1512	54°26′ N 0°25′ E 67 m	54 26	0 23	—	XXIII	♂	26.5	42	15.5	— — 690 g
	— Aug. 9	1532	56°24′ N 6°30′ E 46 m	56 24	6 30	Dutch	XXIX	♀	25.5	44.5	19	— — 890 g
Experiment	1911 May 2	Da. 11.31	10 miles W of Red Cliff 21 m	54°55′	7°45′	Danish	I	♂	24	24.5	0	good
No. 1 1911	— — 3	— 6	W of Nymindegab 8 m	55 48	8 09	—	I	♀	22	22	1	bad, salted
April 19	— — —	— 40	7 miles W of Red Cliff 13 m	54 56	8 07	—	I	♀	22	22.5	0	good
100 Plaice liberated	— — —	— 88	7 — — —	54 56	8 07	—	I	♀	26	26.5	0	—
(No. Da. 11.1—100)	— — 5	— 36	5 — NW of Blaavand Point 8 m	55 36	7 58	—	I	♂	25	24.5	0	—
N by W of	— — —	— 75	2 — SSE — 11 m	55 30	8 06	—	I	♀	24	24.5	1	poor, head dry
Kjærgaards Baake	— — 10	— 7	1 mile SW of Nymindegab	55 47	8 10	—	I	♀	23	23	1	spoiled, tail very dry
55°43.5′ N 8°08′ E	— — —	— 9	3 miles W — [15 m]	55 48	8 06	—	I	♀	23	23	1	— —
10 m	— — —	— 19	1 mile W — 8 m	55 48	8 09	—	I	♂	24	24	0	good
	— — —	— 28	1 — W — —	55 48	8 09	—	I	♀	25	24	0	—
	— — —	— 29	Nymindegab, 1500 m from shore 11 m	55 48	8 09	German	I	♀	25	25.5	0	(♀ immature)
	— — —	— 37	1 mile W of Nymindegab 8 m	55 48	8 09	Danish	I	♀	23	22.5	0	good
	— — —	— 38	1 — W — —	55 48	8 09	—	I	♀	24	23.5	0	—
	— — —	— 47	1 — W — —	55 48	8 09	—	I	♂	24	22	0	—
	— — —	— 64	1 — W of Kærgaarde Bn. —	55 41	8 08	—	I	♀	25	24.5	0	—
	— — —	— 74	1 — W of Nymindegab —	55 48	8 09	—	I	♀	25	24	0	—
	— c. — 12	— 30	c. 3 miles W of Bjerregaard [14 m]	55 52	8 05	—	I	♀	25	24.5	0	spoiled, dry
	— — 13	— 65	3 miles W of Nymindegab 8 m	55 47	8 09	—	I	♀	25	?	[0]	label only
	— — —	— 77	3 — W — —	55 47	8 09	—	I	♂	26	25.5	0	good
	— — 14	— 18	Husby Klit 9 m	56 10	8 06	—	I	♀	24	23.5	0	—
	— — —	— 26	— —	56 10	8 06	—	I	♀	24	24.5	0	—
	— — —	— 50	— —	56 10	8 06	—	I	♂	24	23	0	—
	— — —	— 62	— —	56 10	8 06	—	I	♀	26	26	0	—
	— — —	— 84	Off Aargab 11 m	55 59	8 05	—	I	♀	24	23.5	0	spoiled, tail dry
	— — 15	— 4	c. 1262 m of Aargab Signalstation	55 59	8 07	—	I	♂	23	23.5	1	dry, tail a little crooked
	— — 17	— 3	1 mile of Hvide Sande	56 00	8 05	—	I	♀	24	24	0	good
	— — —	— 35	1 — —	56 00	8 05	—	I	♀	24	24	1	spoiled, dry
	— — 20	— 23	Lyngvig 9 m	56 03	8 04	—	I	♀	24	23.5	0	good
	— — —	— 27	— 8 m	56 03	8 05	—	I	♂	23	23	0	—
	— — —	— 41	— 9 m	56 03	8 04	—	I	♀	23	23.5	0	—
	— — —	— 43	— 8 m	56 03	8 05	—	I	♀	24	25	1	—
	— — 21	— 24	— 9 m	56 03	8 04	—	I	♀	24	23.5	0	—
	— — —	— 73	— —	56 03	8 04	—	I	♂	26	26.5	0	—
	— — —	— 83	— —	56 03	8 04	—	I	♂	24	24	0	—
	— — 23	— 14	Off Lyngvig 13 m	56 02	8 03	—	I	♀	24	24.5	0	
	— — 24	— 86	W of Aargab, 2 miles from shore [18 m]	55 59	8 04	—	I	♂	24	22.5	0	dry
	— — 25	— 21	Husby Klit 9 m	56 10	8 06	—	I	♀	24	24.5	1	—
	— — —	— 56	— —	56 10	8 06	—	I	♀	26	26.5	1	—
	— — —	— 87	1 mile of Aargab 8 m	55 59	8 05	—	I	♀	25	25.5	0	good

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately)	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately[1])	Remarks
				N E				cm	cm	cm	
Experiment No. 1 1911 (Continued).	1911 May 26	Da. 11.16	2 miles off Aargab 11 m	55° 59′ 8° 04′	Danish	I	♀	26	26	0	good
	— — —	— 91	1 mile NW of Aargab 8 m	56 00 8 06	—	I	♀	25	25	1	bad, salted and dried
	— — —	— 95	1 — off — —	55 59 8 05	—	I	♂	28	29.5	1	good
	— — —	— 99	W of Lyngvig Light 9 m	56 03 8 04	—	I	♀	28	29.5	1	—
	— — 27	— 61	2 miles off Haurvig —	55 55 8 07	—	I	♀	25	25.5	0	—
	— — —	— 82	2 — off Bjerregaard 11 m	55 52 8 07	—	I	♂	23	25	2	—
	— — —	— 93	c. 632 M. off Aargab 8 m	55 59 8 06	—	I	♀	24	25.5	1	—
	— — 28	— 12	W of Lyngvig Light 9 m	56 03 8 04	—	I	♀	24	25.5	1	—
	— — —	— 85	W of — —	56 03 8 04	—	I	♀	24	25.5	1	—
	— — 29	— 58	1 mile NW of Nymindegab 13 m	55 48 8 08	—	I	♂	25	24	0	salted and dried
	— — 30	— 67	2 miles off Aargab 11 m	56 00 8 05	—	I	♀	25	26	1	good
	— — —	— 89	6 — W of Nymindegab —	55 47 8 08	—	I	♀	26	25.5	0	— head a little dry
	— — 31	— 45	WNW of Nymindegab, 6 miles from shore [18 m]	55 48 8 01	—	I	♀	24	25	1	sound
	— — —	— 97	1 mile off Haurvig 9 m	55 54 8 08	—	I	♂	24	25	1	good
	— June 14	— 42	4 miles W of Blaabjerg 19 m	55 46 8 03	—	II	♀	25	27	2	—
	— — —	— 55	2 — W of Sønder Lyngvig 8 m	56 01 8 04	—	II	♂	24	24.5	1	— tail a little dry
	— July 15	— 70	4 — SW of Nymindegab [16 m]	55 45 8 05	—	III	♂	24	?	[1]	
	— Dec. 25	— 51	By Jutland Bank 47 m	56 37 6 47	German	VIII	♂	24	30	6	immature
	1912 April 14	— 60	2 miles SW of Cancer 13 m	55 27 8 01	Danish	XII	♂	23	29.5	6	good
	— — 19	— 13	Tyborøn Channel	56 42 8 16	—	XII	♂	24	28.5	4	—
	— — 27	— 48	3 miles W of Nymindegab 8 m	55 48 8 09	—	XII	♀	24	32	8	—
	— Aug. 22	— 90	43 m	56 30 5 40	English	XVI	♂	24	31.5	8	mature tail dry, weight 290 g gutted
	1913 April 4	— 68	8 — SW of Nymindegab 15 m	55 41 8 03	Danish	XXIV	♀	22	26.5	4	good
Experiment No. 2 1911 April 19 100 Plaice liberated (No. Da. 11. 101-200) c. 10 miles W of Kjærgaards Baake (55° 37′ N, 7° 52′ E) 15 m	1911 May 6	— 169	West of Sylt 17 m	55° 00′ 8° 08′	German	I	♂	24	24.5	0	immature
	— — 9	— 106	W by S of Kærgaarde Bn. 8 m	55 41 8 07	Danish	I	♀	24	23	0	good
	— — —	— 177	3 miles W of Nymindegab [16 m]	55 48 8 06	—	I	♀	24	23.5	0	spoiled, tail very dry
	— — 10	— 101	By Nymindegab, 1500 M from shore 11 m	55 48 8 08	German	I	♂	25	26	1	immature
	— — —	— 109	— — —	55 48 8 08	—	I	♂	24	25	1	—
	— — —	— 110	— — —	55 48 8 08	—	I	♀	23	24	1	—
	— — —	— 118	1 mile W of Nymindegab 8 m	55 48 8 09	Danish	I	♀	24	23.5	0	good
	— — —	— 122	1 — off Aargab [16 m]	55 59 8 06	—	I	♂	23	23	1	bad, very dry
	— — —	— 127	2 miles W of Kærgaarde Bn. 8 m	55 41 8 07	—	I	♀	23	23	0	good
	— — —	— 130	12 — NW of Blaavand Point 17 m	55 39 7 48	—	I	♂	25	25	0	—
	— — —	— 147	1 mile W of Kærgaarde Bn. 8 m	55 41 8 07	—	I	♂	26	26.5	0	—
	— — —	— 151		—	c. I	♂	25	25.5	1	bad, tail dry
	— — —	— 191	6 miles NW of Blaavand Point 11 m	55 36 7 56	—	I	♂	25	24	0	good
	— — 11	— 192	Ringkøbing Fiord off S Lyngvig	56 01 8 10	—	I	♂	26	27	1	weight: 150 g
	— — 14	— 112	W of the Channel off Husby Klit, [?] 13 m		—	I	♂	24	23.5	0	good
	— — —	— 121	Lyngvig 8 m	56 03 8 05	—	I	♀	28	28.5	0	—
	— — 16	— 168	4 miles NW of Graadeep 11 m	55 27 8 09	—	I	♀	26	26	0	—
	— — 18	— 108	Ringkøbing Fiord, near the outlet by Hvide Sande	56 00 8 09	—	I	♂	23	24	2	bad, dry
	— — 20	— 115	Lyngvig 9 m	56 02 8 05	—	I	♀	24	23.5	0	good
	— — 21	— 135	— —	56 02 8 05	—	I	♂	27	26.5	0	—
	— — 22	— 156	1 mile SW of Slugen, N 13 m	55 33 7 47	—	I	♀	24	24.5	0	—
	— — —	— 188	2 miles SW of Hvide Sande [16 m]	55 59 8 04	—	I	♂	23	23.5	0	—
	— — 23	— 129	1 mile off Haurvig	55 55 8 08	—	I	♂	24	26	2	—
	— — —	— 155	4 miles off — 20 m	55 55 8 01	—	I	♀	24	25	1	—
	— — —	— 189	2 — W of Søndervig 9 m	56 07 8 05	—	I	♀	25	24.5	0	rotten
	— — 25	— 107	2 — W of Kærgaarde Bn. 13 m	55 41 8 05	—	I	♂	24	23.5	0	— entirely dry
	— — —	— 142	2 — W by S of Aargab Bn. 8 m	55 58 8 06	—	I	♀	25	25	1	— —

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately) N	Central Position (Approximately) E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment No. 2 1911 (Continued).	1911 May 25	Da. 11.154	Husby Klit 9 m	56°10′	8°06′	Danish	I	♀	25	25	1	dry
	— — —	— 175	— —	56 10	8 06	—	I	♂	24	25	2	—
	— — 26	— 200	1 mile of Aargab 8 m	55 59	8 06	—	I	♂	27	28	1	good
	— — 27	— 102	20 miles N of Heligoland 45 m	54 20	7 15	—	I	♀	27	28	1	end of tail a little dry
	— — 28	— 132	1 mile W of Kærgaarde Bn. 11 m	55 42	8 06	—	I	♀	25	26.5	1	good
	— — —	— 153	3 miles W of Nymindegab 8 m	55 47	8 09	—	I	♀	24	24	1	bad, entirely dry
	— — 29	— 158	Hanstholm Light in SW 17 m	57 09	8 39	—	I	♀	26	27	1	
	— — —	— 182	3 miles off Haurvig 15 m	55 55	8 05	—	I	♀	24	25.5	1	good
	— June 1	— 116	2 — — —	55 55	8 06	—	II	♀	26	28	2	—
	— — 4	— 119	2 miles off Bjerregaard 11 m	55 52	8 07	—	II	♂	24	24	0	—
	— July c. 15	— 133	c. 3 miles W of Bovbjerg [17 m]	56 30	8 02	—	III	♂	28	?	[2]	
	— — —	— 162	3 miles NW — [21 m]	56 32	8 02	—	III	♀	24	?	[2]	
	1912 April 2	— 143	14 — W by N of Graadeep 19 m	55 26	7 51	—	XII	♂	24	27.5	3	good
	— — 26	— 199	WSW of Nymindegab, 2 miles from shore [16 m]	55 47	8 07	—	XII	♂	25	30	5	
	— — 29	— 113	2 miles NNW of Blaavand Point 13 m	55 37	8 02	—	XII	♀	24	24.5	1	bad, tail dry
	— May 1	— 152	½ mile W by S of Blaabjerg 15 m	55 44	8 07	—	XIII	♀	23	27.5	4	good
	— — c. 14	— 125	Off Trans Church —	56 29	8 05	—	XIII	♀	25	26	1	
	— — 15	— 186	1½ miles NW by W of Ringebjerg Bn. 6 m	55 37	8 05	—	XIII	♀	24	26.5	2	good
	— June 6	— 176	10 — W of Nymindegab 15 m	55 47	8 04	—	XIV	♀	25	32.5	7	—
	— August 6	— 178	60 — NW of Slugen N 41 m	56 08	6 23	—	XVI	♂	25	30	5	bad, head and tail dry
Experiment No. 3 1911 June 17 100 Plaice liberated (No. Da. 11.501—600) St. 1534 8 miles SW ¾ W of Graadeep Light-ship 55° 15′ N 7° 58′ N 20 m.	1911 June 17	Da. 11.582	10 miles WSW of Graadeep Light-ship 22 m	55°16′	7°53′	Danish	0	♀	26	26	0	good
	— — —	— 600	10 — — —	55 16	7 53	—	0	♀	22	22	0	—
	— — 18	— 503	11 — SW — 21 m	55 12	7 56	—	0	♂	25	24.5	0	—
	— — —	— 514	10 — — — —	55 13	7 57	—	0	♀	24	24.5	0	—
	— — —	— 523	11 — — — —	55 12	7 56	—	0	♂	23	22.5	0	—
	— — —	— 524	11 — — — —	55 12	7 56	—	0	♂	22	22	0	—
	— — —	— 525	11 — — — —	55 12	7 56	—	0	♀	23	22	0	—
	— — —	— 532	12 — WSW — 22 m	55 15	7 50	—	0	♂	25	25.5	0	—
	— — —	— 565	10 — SW — 21 m	55 13	7 57	—	0	♂	24	24	0	—
	— — 19	— 517	11 — WSW — 22 m	55 16	7 52	—	0	♂	24	23.5	0	—
	— — —	— 550	12 — — — —	55 15	7 50	—	0	♀	23	23	0	—
	— — —	— 557	11 — SW — 21 m	55 12	7 56	—	0	♂	26	26	0	—
	— — —	— 560	11 — WSW — 22 m	55 16	7 52	—	0	♀	23	23	0	—
	— — —	— 562	11 — SW — 21 m	55 12	7 56	—	0	♀	24	[25]	[0]	—
	— — —	— 566	11 — WSW — 22 m	55 16	7 52	—	0	♂	23	22.5	0	—
	— — —	— 577	11 — SW — 21 m	55 12	7 56	—	0	♀	30	30.5	0	—
	— — —	— 580	11 — — — —	55 12	7 56	—	0	♂	22	22	0	—
	— — —	— 585	11 — — — —	55 12	7 56	—	0	♂	24	24.5	0	—
	— — —	— 588	11 — — — —	55 12	7 56	—	0	♀	22	21.5	0	—
	— — 20	— 518	10 — SW by W — —	55 15	7 55	—	0	♂	22	22	0	bad, head and tail dry
	— — 21	— 507	12 — — — —	55 13	7 52	—	0	♂	26	25	0	end of tail a little dry
	— — —	— 508	10 — SW — —	55 13	7 57	—	0	♂	24	23	0	bad, dry & tail crooked
	— — —	— 513	10 — SW — —	55 13	7 57	—	0	♀	24	23.5	0	good
	— — —	— 570	22 — WSW of Graadeep —	55 10	7 36	—	0	♀	28	27.5	0	—
	— — —	— 571	8 — S of Vyl Light-ship —	55 16	7 47	—	0	♀	27	[27.5]	[0]	spoiled
	— — —	— 590	10 — SW of Graadeep Light-ship —	55 13	7 57	—	0	♂	26	25.5	0	good
	— — —	— 595	22 — WSW — —	55 10	7 36	—	0	♀	24	23.5	0	—
	— — 22	— 564	11 — SW — Light-ship —	55 12	7 56	—	0	♂	22	21.5	0	bad, dry
	— — —	— 573	6 — S of Vyl Light-ship —	55 18	7 47	—	0	♂	25	25.5	0	good
	— — —	— 593	11 — SW of Graadeep Light-ship —	55 12	7 56	—	0	♂	24	23	0	bad, very dry
	— — 24	— 539	9 — SW by W — —	55 16	7 56	—	0	♀	22	21.5	0	— —
	— July 5	— 505	12 — SW — —	55 12	7 56	—	I	♀	26	25.5	0	good

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1]) cm	Remarks
Experiment No. 3 1911 (Continued).	1911 July 5	Da. 11.587	3 miles S of Graadeep Light-ship 19 m	55°19′	8°08′	Danish	I	♀	24	?	[0]	label only
	— Aug. 6	— 531	20 — WNW of Horns Reef Light-ship 36 m	55 39	6 45	—	II	♀	23	23.5	1	bad, salted and dried
	— — 9	— 509	14 — WNW — 34 m	55 37	6 55	—	II	♂	25	25	[1]	— part of tail lost
	— — 10	— 522	17 — NW by N — 35 m	55 46	6 58	—	II	♂	23	23.5	1	— head and tail dried
	— — 22	— 579	6 — NW — 34 m	55 38	7 11	—	II	♀	23	23.5	1	— —
	— — 25	— 552	6 — W of Nymindegab 17 m	55 47	8 00	—	II	♂	23	23.5	1	— somewhat dry
	— Sept. 14	— 520	?			German	III	♂	30	32	2	
	— — 17	— 556	60 — WSW of Graadeep 41 m	54 54	6 48	Danish	III	♂	23	23	1	bad, head and end of tail dried
	1912 March 14	— 555	18 — SW by W of Graadeep 20 m	55 13	7 54	—	IX	♀	22	24	2	good
	— May 3	— 545	By Vyl Buoy 13 m	55 26	7 50	—	XI	♂	22	26	4	—
	— — 8	— 548	6 miles WNW of Red Cliff 17 m	55 00	8 08	—	XI	♂	23	27.5	5	bad
	— — 12	— 541	6 — NW 19 m	55 02	8 09	—	XI	♀	23	29.5	6	good
	— — 17	— 544	9 — NW by W — 17 m	55 03	8 07	—	XI	♀	22	25	3	—
	— — 18	— 535	3 — SW of Graadeep Light-ship 16 m	55 19	8 05	—	XI	♂	23	26	3	end of tail a little dry
	— — 22	— 529	4 — W — 16 m	55 21	8 00	—	XI	♂	23	24.5	1	good
	— — 23	— 538	4 — W of Graadeep buoy 17 m	55 25	8 08	—	XI	♂	22	25	3	—
	— — 24	— 569	4 — SW of Graadeep Light-ship 15 m	55 18	8 04	—	XI	♀	22	24	2	tail crooked
	— June 23	— 528	52 — WSW of Graadeep 26 m	54 55	7 04	—	XII	♂	25	32	7	good
	1913 Aug. 12	— 537	7 — NNW of Horns Reef Light-ship 30 m	55 40	7 13	—	XXVI	♀	22	34.5	12	—
Experiment No. 4 1911 June 17 50 Plaice liberated (No. Da. 11.601—50) St. 1535 10 miles S by W¼W of Vyl Light-ship 55° 14′ N 7° 44′ E 22 m.	1911 June 19	Da. 11.604	12 miles WSW of Graadeep Light-ship 22 m	55°15′	7°50′	Danish	0	♀	25	24.5	0	good
	— — —	— 617	10 — SW — 21 m	55 13	7 56	—	0	♂	23	23.5	0	—
	— — —	— 627	12 — WSW — 22 m	55 15	7 50	—	0	♂	26	26.5	0	—
	— — —	— 637	10 — SW — 21 m	55 13	7 56	—	0	♂	23	23	0	—
	— — 21	— 610	12 — SW by W — —	55 13	7 53	—	0	♀	22	?	[0]	label only
	— — —	— 613	12 — — — —	55 13	7 53	—	0	♂	24	23.5	0	bad, head and tail dry
	— — —	— 631	8 — NW of Vyl Light-ship 23 m	55 28	7 34	—	0	♂	26	26	0	— —
	— — 22	— 630	15 — SW of Graadeep Light-ship 21 m	55 09	7 52	—	0	♂	25	24	0	— entirely dry
	— — 25	— 606	13 — — — —	55 11	7 55	—	0	♀	22	20.5	0	— —
	— July 5	— 605	3 — S of Vyl Light-ship 19 m	55 21	7 47	—	I	♀	24	23.5	0	good
	— — 6	— 642	1 mile S of Vyl buoy —	55 26	7 51	—	I	♀	21	21	0	—
	1912 March 26	— 623	10 miles SSW of Graadeep Light-ship —	55 12	8 02	—	IX	♂	24	26.5	2	—
	— April 3	— 618	4 — WNW — 15 m	55 22	8 01	—	X	♀	25	27	2	—
	— — 10	— 608	½ mile SE of Vyl buoy —	55 26	7 51	—	X	♂	23	26	3	—
	— — 18	— 643	ENE of Graadeep Light-ship	55 23	8 10	—	X	♂	23	26	4	very dry
	— — 22	— 644	10 miles NW of Red Cliff 17 m	55 03	8 04	—	X	♀	22	27.5	5	good
	— — 27	— 601	11 — WNW — —	55 00	8 01	—	X	♀	23	32	9	bad, dry
	— June 19	— 609	1 mile NNW of Vyl Light-ship —	55 25	7 44	—	XII	♂	25	31.5	6	good
	1913 April 9	— 650	10 miles N of Red Cliff 13 m	55 07	8 15	—	XXII	♀	21	26	5	—
Experiment No. 5 1911 June 20 Thyborøn Light-buoy 56° 43′ N 8° 10′ E 16 m 100 Plaice liberated (No. 651—750).	1911 June 20	664	3 miles W of Thyborøn 21 m	56°42′	8°05′	Danish	0	♀	23	21.9		quite dry and bad
	— — 26	660	Off Thyborøn Channel 19 m	56 43	8 05	—	0	♀	24	24.5		good
	— July 15	734	c. 4 miles off Vangsaa	57 02	8 20	—	I	♂	24	—		
	— — 28	699	Off Stenbjerg close at shore	56 56	8 20	—	I	♀	27	28		dry
	— Oktb. 18	670	1 mile W of Ringebjerg Bn. 5 m	55 37	8 05	—	IV	♂	22	24.5		good
	1912 Marts 20	740	c. ¾ mile SO of Thyborøn Light-buoy c. 4 m	56 42	8 12	—	IX	♀	24	24		living
	— April 1	698	S of Sæby 4 m	57 19.5	10 34	—	X	♀	23	28.7		—

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture												
	Date	No. on Label	Locality reported	Central Position (Approximately) N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately[1])	Remarks
									cm	cm	cm	
Experiment	1912 April 15	Da. 12.538	2 miles SSE of Graadeep Light buoy 14 m	55° 24′	8° 15′	Danish	0	♂	26	26.5	0	good
No. 1 1912	— — —	— 559	3/4 mile SSW of — 9 m	55 25	8 15	—	0	♂	25	25.5	0	—
April 14	— — 17	— 512	1 — S of — 11 m	55 25	8 15	—	0	♀	23	23.5	0	bad, somewhat dry
100 Plaice liberated	— — 25	— 570	10 miles NW of Red Cliff 17 m	55 03	8 05	—	0	♀	24	24	0	tail crooked and dry
(No. Da. 12.501-600)	— — 27	— 508	1 mile W of Graadeep Light-ship —	55 22	8 06	—	0	♂	26	26	0	tail a little crooked
Outer Edge of	— — —	— 520	By Vyl Buoy 18 m	55 27	7 51	—	0	♂	26	26.5	0	good
Graadeep Bar	— — —	— 527	9 miles SW of Graadeep Light-buoy 15 m	55 18	8 06	—	0	♀	26	26.5	1	bad, tail dry
5° 26′ N, 8° 15′ E	— — —	— 564	3 — N of Graadeep Light-ship 13 m	55 25	8 07	—	0	♂	24	23	0	— head and tail dry
11 m	— — 30	— 542	5 — WNW of — 14 m	55 24	8 00	—	0	♂	27	28	1	good
	— May 3	— 563	Slugen N 17 —	55 35	7 47	—	I	♀	27	27.5	0	—
	— — 7	— 548	10 miles WNW of Graadeep 15 m	55 26	7 58	—	I	♀	24	23.5	0	bad, head and tail dry
	— — 8	— 535	2 — NNW of Blaavand Point 13 m	55 37	8 01	—	I	♂	26	26	0	good
	— — 10	— 530	1 mile NW of Ringebjerg 9 m	55 38	8 04	—	I	♀	27	26.5	0	—
	— — 11	— 565	6 miles WNW of Red Cliff 15 m	54 59	8 09	—	I	♀	23	23.5	0	—
	— — 17	— 547	3 — W of Graadeep 13 m	55 25	8 10	—	I	♀	25	25.5	1	tail a little crooked
	— June 1	— 524	11 — SW of Graadeep Light-ship 17 m	55 13	7 59	—	II	♂	22	23	1	good
	— — —	— 568	3 — S of — 15 m	55 19	8 08	—	II	♀	26	24.5	0	bad, entirely dry
	— — 2	— 600	6 — NW of Red Cliff —	55 01	8 10	—	II	♂	24	24.5	0	good
	— — 4	— 569	6 — WNW of Graadeep —	55 27	8 05	—	II	♂	25	26	1	—
	— — 5	— 575	1 mile WNW of Blaabjerg 11 m	55 45	8 08	—	II	♂	26	25.5	0	—
	— — 8	— 566	1 — SE of Vyl Buoy 17 m	55 26	7 52	—	II	♀	25	27	2	—
	— — 22	— 531	3 miles N by W of Vyl Light-ship 21 m	55 27	7 44	—	II	♂	23	24	1	—
	— — —	— 553	4 — W of Blaabjerg 17 m	55 44	8 04	—	II	♀	24	24	0	—
	— July 1	— 540	45 — WNW of Horns' Reef 43 m	55 42	6 07	—	III	♂	24	27.5	3	—
	— — —	— 560	60 — SW of Graadeep 32 m	54 36	7 16	—	III	♂	25	[21]	[2]	bad
	— — 3	— 597	23 m	55 24	7 45	English	III	♀	25	24.5	0	weight: 107 g (immature)
	— — 17	— 501	45 — N by W of Slugen, N 30 m	56 17	7 20	Danish	III	♂	25	26	1	good
	— — 25	— 529	48 — N by W of — 36 m	56 20	7 15	—	III	♀	26	29	3	—
	— Aug. 7	— 545	1 mile N of — 23 m	55 35	7 49	—	IV	♂	23	25.5	2	—
	— — 9	— 571	3 miles N by W of Horns' Reef 34 m	55 37	7 15	—	IV	♂	27	29.5	3	— head a little dry
	— Okt. c. 4	— 552	?			English	VI	♀	24	26	2	sound: 130 g gutted
	— — 5	— 541	2 — W of the Hotel on Fanø 9 m	55 24	8 16	Danish	VI	♀	24	27	3	—
	— — c. 8	— 517	16 — SW of Bovbjerg 23 m	56 16	7 56	—	c.VI	♀	27	[26]	0	
	1913 April 14	— 505	By the Light-buoy, NE			—	XII	♂	20		[3]	label only
	— — 15	— 598	8 miles SW of Graadeep 15 m	55 19	8 07	—	XII	♂	23	25.5	3	tail a little crooked
	— — 25	— 521	3 — NW of Graadeep Light-bouy 11 m	55 27	8 11	—	XII	♀	25	28	3	rotten
	— — 28	— 567				English	XII	♂	26		[3]	
	— — 29	— 584	5 — W of Ringebjerg Bn. 11 m	55 36	7 58	Danish	XII	♀	25	28	3	good
	— — 30	— 526	1 mile SW of Cancer 13 m	55 28	8 02	—	XII	♂	24	25.5	1	—
	— May 4	— 557	Off Ringebjerg 9 m	55 37	8 02	—	XIII	♀	24	28	4	
	— June 1	— 576	4 miles W of Hornum Light 17 m	54 45	7 58	—	XIV	♀	25	30	5	
	— — 24	— 555	58 — SW by W of Graadeep Gas-buoy 30 m	54 45	7 04	—	XIV	♀	29	35.5	6	good
	— Aug. 12	— 518	7 — NNW of Horns' Reef Light-ship —	55 40	7 13	—	XVI	♂	23		[7]	label only
Experiment	1912 April 15	Da. 12.668	3 miles SSW of Graadeep-Light-buoy 9 m	55° 23′	8° 17′	Danish	0	♂	24	24.5	0	good
No. 2 1912	— — 16	— 677	1 mile W of — 11 m	55 25	8 13	—	0	♀	26	26	0	—
April 15	— — —	— 686	1 — W of — —	55 25	3 13	—	0	♂	24	24.5	0	—
100 Plaice liberated	— — 19	— 656	1 — W of — —	55 25	8 13	—	0	♂	24	23.5	0	bad, head and tail dry
(No. Da. 12.601-700)	— — —	— 673	5 miles SE of Graadeep Light-ship 13 m	55 19	8 15	—	0	♀	26	26.5	0	— — —
1 mile NE by E of	— — 22	— 604	10 — NW of Red Cliff 17 m	55 03	8 05	—	0	♂	25	25	0	good, end of tail a little dry
GraadeepLight-ship	— — —	— 612	10 — WSW of — —	54 48	7 55	—	0	♀	25	24.5	0	bad, entirely dry
55° 22′ N 8° 09′ E	— — —	— 650	9 — SW of Graadeep Light-buoy 15 m	55 13	8 06	—	0	♀	25	24	6	— —
16 m	— — 24	— 602	5 — S by W of — Light-ship —	55 17	8 07	—	0	♀	25	25	0	— head and tail dry
	— — 27	— 640	3 — SW of — — —	55 19	8 05	—	0	♀	25	25.5	0	good
	— — —	— 694	6 — S of — — —	55 16	8 10	—	0	♂	24	24	0	—

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture											
	Date	No. on Label	Locality reported	Central Position (Approximately) N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment No. 2 1912 (Continued).	1912 April 28	Da. 12.642	5 miles NW of Graadeep Light-ship 13 m	55° 25′	8° 00′	Danish	0	♂	28	28.5	0	good
	— — 29	— 632	5 — SW — 17 m	55 17	8 02	—	0	♂	24	24	0	head and tail dry
	— — —	— 633	5 — SW — —	55 17	8 02	—	0	♀	25	25	0	head and tail a little dry
	— —. 30	— 610	By Topsand in Graadeep	55 30	8 22	—	0	♂	22	22.5	0	good
	— May 3	— 648	By Vyl Buoy 13 m	55 27	7 51	—	I	♂	26	26	0	head and tail dry
	— — 15	— 699	1 mile WNW of Graadeep Light-buoy —	55 25	8 12	—	I	♀	25	26	1	good
	— — 17	— 666	9 miles WNW of Red Cliff —	54 59	8 04	—	I	♂	26	26.5	0	—
	— — 19	— 698	9 — WNW — 15 m	54 59	8 04	—	I	♀	24	24.5	1	bad, head dry
	— — 22	— 623	3 — W of Graadeep buoy 13 m	55 25	8 10	—	I	♂	25	21.5	0	bad, entirely dry, tail broken
	— — —	— 628	4 — SW of Graadeep Light-ship 15 m	55 18	8 03	—	I	♂	26	25	0	— head and tail dry
	— — —	— 651	2 — SSW of Graadeep 8 m	55 25	8 16	—	I	♀	27	27.5	1	good, head and tail dry
	— — 23	— 691	4 — SW of Graadeep Light-buoy 9 m	55 22	8 18	—	I	♀	23	23	1	bad, salted and dried
	— — 24	— 607	3 — SW — Light-ship 13 m	55 19	8 04	—	I	♂	25	25.5	1	— head and tail dry
	— June 1	— 620	6 — SW — — 17 m	55 17	8 02	—	II	♂	24	25	1	good
	— — 2	— 684	5 — E of Vyl Light-ship [15 m]	55 27	7 59	—	II	♂	25	24.5	0	—
	— — 4	— 601	5 — W by N of Kærgaarde Bn. 13 m	55 41	8 02	—	II	♀	23	23.5	0	—
	— — —	— 608	1/2 mile SE of Vyl Buoy —	55 26	7 51	—	II	♀	25	25	0	—
	— — —	— 683	5 miles W by N of Kærgaarde Bn. —	55 41	8 02	—	II	♀	26	27	1	—
	— — 7	— 652	6 — W of Nymindegab 15 m	55 47	8 01	—	II	♀	30	32.5	2	—
	— — 8	— 617	8 — SW of Red Cliff 26 m	[54 47	7 34]	—	II	♀	24	24	0	—
	— — 11	— 649				—	II	♀	25	?	[1]	label only
	— — 22	— 618	5 — NW of Vyl Light-ship 19 m	55 28	7 42	—	II	♀	24	25	1	good
	— — —	— 663	1 mile SE of Vyl buoy 17 m	55 26	7 51	—	II	♂	27	28	1	—
	— — 26	— 609	3 miles N of Vyl Light-ship 23 m	55 27	7 44	—	II	♀	25	26	1	—
	— July 4	— 615	25 — W of Bovbjerg 26 m	56 27	7 31	—	III	♀	26	30	4	—
	— — 6	— 690	4 — N of Vyl Light-ship 17 m	55 27	7 46	—	III	♀	26	26.5	0	—
	— — 9	— 693	4 — — —	55 27	7 46	—	III	♀	23	24.5	1	—
	— — 23	— 644	36 m	55 56	7 35	English	III	♀	23	26.5	3	— weight: 158 g, gutted
	— — 25	— 655	30 — NNW of Slugen N 28 m	55 59	7 19	Danish	III	♀	24	27	3	—
	— Oktbr. 24	— 659	5 — W of Sønderho 11 m	55 20	8 17	—	VI	♀	26	28.5	2	—
	1913 April 2	— 629	5 — S of Graadeep 15 m	55 21	8 17	—	XII	♀	23	26.5	3	—
	— May 9	— 695	1 mile WNW of Haurvig Bn. 9 m	55 56	8 07	—	XIII	♀	25	30	5	—
	— — 18	— 647	10 miles N of Red Cliff 13 m	55 07	8 15	—	XIII	♀	26	30.5	4	—
	— — 23	— 627	4 — SW of Graadeep 15 m	55 22	8 11	—	XIII	♂	24	26	2	—
	— — —	— 645	2 — SE of Graadeep Light-ship 13 m	55 19	8 08	—	XIII	♀	25	29	4	—
	— — 30	— 687	1/2 mile N of Hertha's Flak 24 m	57 40	10 51	—	XIII	♀	25	32.5	7	
	— June 3	— 619	5 miles WNW of Graadeep Light-ship 19 m	55 21	7 54	—	XIV	♂	28	32.5	4	—
	— — —	— 638	3 — SW of Graadeep 15 m	55 23	8 12	—	XIV	♂	26	27.5	1	—
Experiment No. 3 1912 September 11 75 Plaice liberated (No. Da. 1920—1969 & No. Da. 12.901—925) 2 miles NNE of Vyl Light-ship 55° 26′ N 7° 45′ E 25 m	1912 Sept. 14	Da. 1939	1 mile NW of Graadeep Light-ship 17 m	55° 21′	8° 03′	Danish	0	♂	26	26.5	0	good
	— — —	— 1951	1 — NW — —	55 21	8 03	—	0	♀	25	24.5	0	tail crooked
	— — —	Da. 12.910	1 — S by E of Vyl buoy 19 m	55 26	7 51	—	0	♀	25	25	0	good
	— — 20	Da. 1944	3 miles NW of Graadeep Light-ship 17 m	55 23	8 00	—	0	♂	26	26	0	—
	— — 21	— 1956	3 — NW — —	55 23	8 00	—	0	♀	24	24	0	—
	— — —	— 1963	3 — NW — —	55 23	8 00	—	0	♀	23	22.5	0	—
	— — —	Da. 12.903	3 — NW — —	55 23	8 00	—	0	♀	26	25.5	0	—
	— — 23	Da. 1945	16 — WSW of Graadeep 19 m	55 17	7 52	—	0	♀	23	23	0	—
	— — —	— 1961	6 — N by E of Graadeep Light-ship 15 m	55 26	8 05	—	0	♀	23	23.5	0	—
	— — 25	— 1959	6 — W of Ringebjerg Bn. 17 m	55 37	7 55	—	0	♀	26	26	0	—
	— Oktbr. 12	— 1931	7 — SSW of Graadeep —	55 19	8 12	—	I	♀	24	23.5	0	snout a little dry
	— — —	— 1946	8 — SW — —	55 18	8 05	—	I	♀	33	33.5	0	good
	— — —	— 1967	8 — SSW — 15 m	55 17	8 12	—	I	♀	25	25	0	—
	— — 18	— 1921	7 — SW of Graadeep Light-ship 17 m	55 14	7 57	—	I	♀	27	27	0	—
	— — 20	— 1938	8 — SW — —	55 13	7 57	—	I	♀	23	23.5	0	—
	1913 March 31	— 1952	4 — SSW of Graadeep 13 m	55 22	8 13	—	VI	♀	24	24.5	0	—
	— April 1	— 1924	5 — S by W of Graadeep 15 m	55 21	8 14	—	VII	♀	27	28	1	—
	— — —	Da. 12.917	4 — SW — 13 m	55 22	8 11	—	VII	♀	24	25.5	1	—

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Particulars of Liberation. Date. Locality. No. of fish. etc.	Particulars of Recapture											
	Date	No. on Label	Locality reported	Central Position (Approximately) N	E	Nationality of Fishing Vessel	No. of months between Liberat. and Recapture.	Sex	Initial Size cm	Ultimate Size cm	Growth Approximately[1] cm	Remarks
Experiment	1913 April 16	Da. 1922	1 mile NW of Graadeep Light-ship 11 m	55° 21′	8° 03′	Danish	VII	♀	23	23	0	good
No. 3 1912	— — 17	Da. 12.907	By the Gas-buoy No. 0 [8 m]	55 26	8 15	—	VII	♂	26	26	0	—
(Continued).	— May 28	— 901	3 miles NE of Slugen N 14 m	55 37	7 51	—	VIII	♀	26	26.5	0	—
	— July 11	— 918	2 — NW of Horns Reef Light-ship 36 m	55 35	7 17	—	X	♀	23	24.5	2	stale, tail very crooked
Experiment	1912 Sept. 14	Da. 12.936	9 miles WSW of Graadeep 17 m	55° 21′	8° 01′	Danish	0	♀	30	30.5	0	good
No. 4 1912	— — —	— 982	6 — NW of Graadeep Light-ship —	55 24	7 55	—	0	♂	23	23	0	—
September 11	— — —	— 1000	3 — NW —	55 22	8 00	—	0	♀	23	23.5	0	—
75 Plaice liberated	— — 21	— 975	½ mile N — 15 m	55 21	8 05		0	♀	25	24.5	0	bad, head somewhat dry
(No.	— — 22	— 938	½ — N —	55 21	8 05	—	0	♀	24	24	0	good
Da. 12.926—1000)	— — 24	— 929	6 miles SW of Graadeep 17 m	55 24	8 09	—	0	♂	24	24.5	0	—
5 miles S by E of	— — 25	— 989	8 — SW — 16 m	55 20	8 04	—	0	♀	22	22	0	head and tail a little dry
Vyl Light-ship	— — —	— 995	7 — SW by W of Graadeep 15 m	55 22	8 06	—	0	♀	24	24	0	— — —
55° 19′ N 7° 48′ E	— Oktbr. 3	— 969	4 — W of Blaabjerg 17 m	55 44	8 03	—	I	♀	28	27	0	good
21 m	— — 13	— 976	4 — SSE of Graadeep Light-ship 15 m	55 17	8 09	—	I	♀	25	25.5	0	—
	— Decbr. 5	— 964	Graadeep by Topsand in Hjertingdeep	55 30	8 22	—	III	♀	24	24.5	0	—
	1913 April 2	— 934	5 miles SSW of Graadeep 13 m	55 21	8 13	—	VII	♂	27	26	0	bad, dry
	— June 18	— 933	1 mile N of Vyl Light-ship 19 m	55 26	7 45	—	IX	♂	23	23.5	0	good
	1914 April 2	— 927	10 miles S of Red Cliff —	54 50	8 02	—	XIX	♀	26	30	4	—
	— — 4	— 999	1 mile S of Cancer Light-buoy 14 m	55 29	8 03	—	XIX	♂	24	26	2	head and tail a little dry
Experiment	1912 Novbr. 12	Da. 12.814	Graadeep, by Sandodden	55° 28′	8° 26′	Danish	0	♀	20	[21]	[0]	good
No. 5 1912	— — 13	— 801	In Graadeep between Jerg									
November 9			and the Harbour	55 28.5	8 24.5	—	0	♀	24	23.5	0	—
40 Plaice liberated	— — 16	— 833	Graadeep, from the Harbour towards South	55 27	8 26	—	0	♀	23	23.5	0	—
(No. Da. 12.801—840)	— — 30	— 834	— Fovrfeld Light-buoy	55 29	8 24	—	0	♂	24	24	0	—
Graadeep,	1913 Jan. 3	— 802	— by Jerg	55 29	8 23	—	II	♂	25	25.5	0	—
between Esbjerg	— — 8	— 809	— off Hjerting in Hjertingdeep	55 31	8 20.5	—	II	♀	22	22.5	0	—
harbour and Jerg	— — —	— 816	— Topsand —	55 30	8 22	—	II	♀	23	23.5	0	—
55° 28′ N 8° 25′ E	— March 26	— 803	1 mile NW of Graadeep 9 m	55 26	8 13	—	IV	♀	25	25	0	—
6 –10 m	— April 22	— 830	4 miles NNW of Graadeep 8 m	55 28.5	8 10	—	V	♀	22	25	4	poor, dry
	— — 25	— 824	100 fms. from shore between									
			Ringebjerg and Kærgaarde Bn. 4 m	55 39	8 07	—	V	♂	24	24.5	1	—
	— August 8	— 813	55° 40′ N 7° 18′ E 30 m	55 40	7 18	Dutch	IX	♀	21	24.5	3	fresh
	— Octbr. 11	— 808	7 miles NW of Nymindegab 13 m	55 50	8 00.5	Danish	XI	♀	22	23	1	good
	1914 July 31	— 818	10 — W by S of Red Cliff 21 m	54 53	8 03	—	XX	♀	21		[7]	label only
Experiment	1912 Novbr. 9	Da. 12.855	In Graadeep, by Jerg	55° 29′	8° 23′	Danish	0	♀	24	24.5	0	good
No. 6 1912	— — —	— 864	— —	55 29	8 23	—	0	♂	24	24.5	0	—
November 9	— — 12	— 896	— between									
60 Plaice liberated			Jerg and the Harbour	55 28.5	8 24.5	—	0	♀	22	22.5	0	—
(No. Da. 12.841—900)	— — —	— 898	— — — —	55 28.5	8 24.5	—	0	♂	24	24.5	0	—
Between Esbjerg	— — 13	— 885	— — — —	55 28.5	8 24.5	—	0	♀	22	[23]	[0]	—
harbour and	— — 14	— 881	Graadeep between Jerg and Sandodden	55 28.5	8 24.5	—	0	♂	21	21.5	0	—
the new	— — 15	— 850	— — —	55 28.5	8 24.5	—	0	♀	21	21.5	0	—
Fishery-harbour	— — 17	— 843	— straight W of the Harbour	55 27.5	8 25.5	—	0	♂	21	21	0	—
55° 28′ N 8° 25′ E	— — 18	— 863	— Topsand i Hjertingdeep	55 30	8 21.5	—	0	♀	23	23	0	—
6—8 m	— Decbr. 10	— 865	— by Sandodden	55 27.5	8 26	—	I	♀	22	22	0	—
	— — 12	— 888	— —	55 27.5	8 26	—	I	♂	22	21.5	0	—
	— — 31	— 897	— by the new Harbour	55 28	8 25.5	—	I	♀	22		[0]	label only
	1913 Jan. 4	— 889	— W of Sædding Light	55 29.5	8 22	—	II	♂	21	21.5	0	good
	— — 10	— 887	— by Sandodden	55 27.5	8 26	—	II	♂	22	22.5	0	—
	— April 6	— 883	2 miles NNW of Graadeep 9 m	55 27.5	8 12	—	V	♀	23	22.5	0	poor, dry
	— — 24	— 884	3 — W of Ringebjerg Bn. 8 m	55 36	8 02	—	V	♂	26	26.5	0	good
	— May 4	— 842	1 mile W of Nymindegab —	55 48	8 09	—	VI	♀	24	24	0	
	— — 5	— 891	3 miles W of Ringebjerg Bn. 9 m	55 36	8 02	—	VI	♂	26	26.5	0	good
	— — 15	— 880	1 mile W — 13 m	55 38	8 03	—	VI	♂	24	24	0	head dried
	— — 16	— 874	1 — W by S — 11 m	55 37	8 03	—	VI	♀	23	23	1	poor
	— June 23	— 892	Graadeep Light-ship 17 m	55 21	8 02	German	VII	♀	21			label only
	— — 26	— 873	5 miles NW of Horns Reef Light-ship 36 m	55 38	7 13	—	VII	♀	22	23	1	good
	— July 30	— 893	3 — off Hvide Sande [18 m]	55 59	8 02	—	VIII	♀	21	23.5	2	

[1]) Figures in brackets give the supposed growth as used in calculation of the weight and value of recaptured specimens.

Appendix III. Particulars regarding the Danish Transplantation experiments with plaice in the North Sea in 1910.

Particulars of Liberation. Date. Locality. No. of fish etc.	Particulars of Recapture										
	Date	No. on Label	Locality reported	Central Position (Approximately	Nationality of Fishing Vessel	No of months between Liberat. and Recapture	Sex	Initial Size	Ultimate Size	Growth Approximately	Remarks
				N E				cm	cm	cm	
Transplantation Experiment No. 2 1910 July 16 160 Plaice (No. 1607—1766) liberated Between the Bell-buoy and Graadeep Light-ship, 14 m Transplanted from »off Nymindegab«.	1910 Nov. 21	1645	Jerg Light-buoy, Graadeep	55°29′ 8°22′	Danish	IV	♂	23	23.5	0 5	good
	1911 April 19	1624	1 mile SW of Slugen, N 12 m	55 33 7 47	—	IX	♀	29	30	1	—
	1912 May 8	1747	8 miles W of Graadeep 15 m	55 25 8 04	—	XXII	♀	22.5	26.5	4	—
Transplantation Experiment No. 3 1910 July 17 60 Plaice liberated (No. 1847—1908) (No. 1901—1902 missing). Just outside Esbjerg Fishery-harbour, 0—0.5 m. Transplanted from »off Nymindegab«.	1911 March 23	1850	3 miles W by N of the Gas-buoy NE, (?) 13 m		Danish	VIII	♀	24	23.5	0	good
	— — —	1863	3 — SSW of Cancer —	55°27′ 8°00′	—	VIII	♀	22	23.5	1.5	—
	— May 6	1875	ENE of Red Cliff (Sylt) —	54 58 8 09	German	IX	♂	22	24	2	immature
	— Aug. 25	1868	6 miles W of Nymindegab 17 m	55 48 8 01	Danish	XIII	♀	21	22	2	poor, somewhat dry
	— Sept. 14	1854	47 m	55 12 5 20	German	XIV	♀	25.5	31	5.5	immature
Transplantation Experiment No. 4 1910 July 17 80 Plaice liberated (No. 1767 -1846) North-edge of Fanø, off Skallingens Light 0.5 m. Transplanted from »off Nymindegab«.	1910 Dec. 14	1767	Mejlsand in Graadeep	55°29′ 8°24′	Danish	V	♂	25	26.5	1.5	good
	1911 April —	1768	WNW of Red Cliff, Sylt 17 m	54 59 8 05	German	IX	♂	22.5	25	2.5	weight: 113 g, remarkable thin
	— — 21	1837	4 miles NW of Graadeep 11 m	55 28 8 09	Danish	IX	♀	24.5	27.5	3	good
	— May 3	1808	5 — W of Sønderho 13 m	55 20 8 18	—	X	♂	23.5	25.5	2	—
	— — 24	1818	1 mile off Havrvig	55 55 8 07	—	X	♀	23	29	6	—
	— — 30	1846	Kjærgaarde in South 15 m	55 45 8 07	—	X	♀	23.5	27.5	4	
	— June 2	1790	55° 41′ N, 7° 55′ E	55 41 7 55	English	XI	♂	23.5	28	4.5	sound, weight: 170 g, gutted
	— — 3	1801	10 miles W of Graadeep 19 m	55 22 7 58	Danish	XI	♂	22.5	23	1	very poor condition, head dry.

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